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ABSTRACT

To provide the basis for implementation of a competency based teacher education (CBTE) program, the second of three phases of a university CBTE project involved pilot inservice, pilot preservice, and course infusion components in industrial education. Thirteen beginning industrial education teachers representing eleven different occupational areas participated in the inservice CBTE study, which utilized a self-paced, open entry-open exit, minimum performance specified credit system, and criterion referenced grading. Positive conclusions can be drawn from questionnaire results on inservice teachers' perceptions of CBTE. The preservice pilot, accomplished in three steps, using industrial arts students during successive terms in the 1978-79 academic year, culminated in three recommendations: (1) that CBTE be expanded to include all pre-professional courses; (2) that textual material of any kind be selected solely on the basis of utility; and (3) that further studies be conducted to ascertain alternate methods of instruction that meet the learning styles of individuals. Supplemented use of seven performance based teacher education (PBTE) modules developed by the National Center for Research in Vocational Education at Ohio State University and infused into Industrial Education 19v, resulted in a rise from the 10th to the 85th percentile over the phase 1 evaluation on student teachers' evaluation of the "suitability of textbooks and/or materials." An Advisory committee suggested use of instructional resource centers to support CBTE, and an administrative/supervisor meeting summarizing the three projects received favorable reactions. (Appendixes include evaluation instruments used in the studies.) (MEK)

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A Pennsylvania State University Competency Based Teacher Education Program for Industrial Education Teachers - Phase Two (Project Number 86-8819)

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Members of The Pennsylvania State University - CBTE Advisory Committee named in Appendix E; and

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Special recognition is extended to Dr. John Shemick and Dr. Edward Bilderback for completing that phase of this document dealing with the pilot preservice CBTE effort reported in Chapter III; and Mr. Nye Scofield for completing that phase of this document dealing with the infusion of the Ohio State University PBTE modules into an operating Vocational Industrial Teacher Education program reported in Chapter IV.

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CHAPTER I

INTRODUCTION

State Priority

Goal VII of The Pennsylvania State Board for Vocational Education established the need to strengthen the development and implementations of comprehensively planned programs to meet the needs of and demands for competent professional vocational teachers, counselors, supervisors, and administrators (PDE-1977). This project emphasized the achievement of sub-goal VII.2 which supported the development of competency-based relevant, responsive, preservice strategies for the preparation of vocational education and guidance personnel; and sub-goal VII.3 which provided for competency-based in-service activities which maintain and upgrade the pedagogical and occupational competencies of vocational and guidance personnel.

Statement of the Problem

The problem was to design and implement a pilot Competency-Based Teacher Education program for preservice and in-service was industrial education teachers. The primary design of this project was based upon the verification of industrial education teacher competencies and the competency assessment criteria statements developed in phase I of the CBTE study. The problem included the treatment of professional considerations such as time-line requirements, the equation of college credit, grading, attainment of competency assessment criteria, preparation of resource persons, and curriculum materials utilization and adaptability.

Attention was given to the study of and planning for a university-based instructional resource center with implications for establishing satelite instructional resource centers at field locations.

Need for the Study

The Vocational Industrial Education Program at The Pennsylvania State University is moving toward increasing it's flexibility and accountability. The CBTE project of 1977-1978 was part of that effort and represents the first phase of a projected three phase program. Phase I focused on identifying and verifying competencies from a number of sources followed by the development of competency assessment criteria.

This report focuses upon the second phase of the three phase project designed to provide the basis for implementing a competency based teacher education program for industrial education teachers at The Pennsylvania State University (see Figure D).

Further, two pilot studies were implemented in Phase II to (1) try out those learning activities generated out of the Ohio State Modules, and (2) verify the validity of assessment criteria developed to evaluate learning experiences. Two studies were needed because of the in-service field-based portion and the preservice university-based portion of The Pennsylvania State University's Industrial Teacher Education Program.

Vocational Industrial Teachers are recruited from industry and are required to enroll in college courses to meet certification requirements while teaching. A competency-based teacher education program in the field will meet the professional needs of these teachers. The preservice CBTE is designed to provide greater flexibility for students in addition to couching

their preparation in performance terms which, of course, lends itself to complete accountability. The CBTE approach allows for a wider selection of alternatives as well as more rapid progress toward professional competency.

Three areas of concentration are being emphasized during the currently approved project. First, a pilot in-service CBTE program has been planned, and was executed for selected vocational industrial education teachers. Secondly, a pilot preservice CBTE program has been planned and was executed for selected industrial education students. Thirdly, an infusion of PBTE Modules has been planned for and was accomplished with the course Industrial Education 19v, Observation and Practice Teaching. Each of these areas of project concentration will be discussed in turn on the following pages.

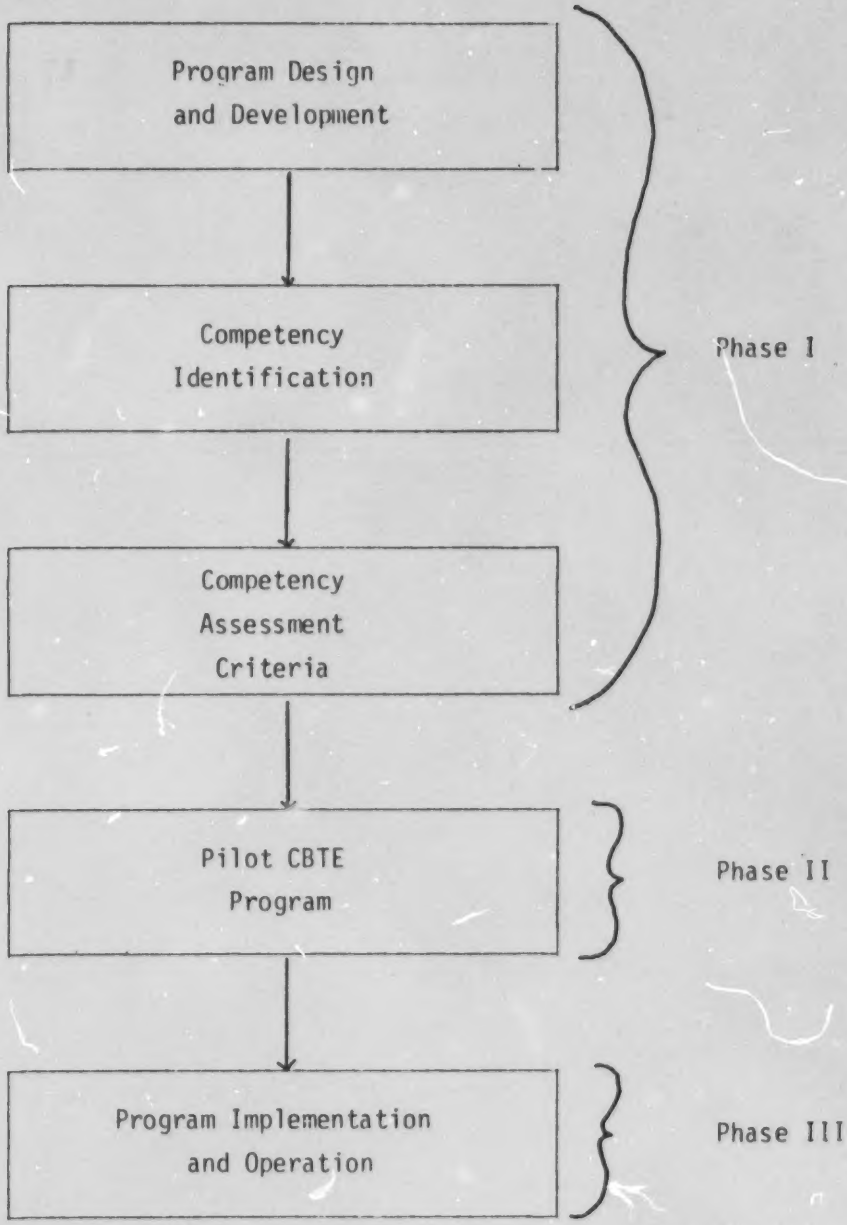


Fig. 1. The Pennsylvania State University Model for CBTE Development

Statement of Objectives

The specific objectives of Phase II of the Pennsylvania State University CBTE program include the following:

1. To plan, organize and operate a pilot Competency-Based Teacher Education program for in-service industrial education teachers at an appropriate location within the Central region of the Commonwealth of Pennsylvania.

2. To incorporate the findings of Phase I of The Pennsylvania State University Model for CBTE Development with the learning strategies utilized to establish Level I vocational education certification. Competencies associated with a block of twelve credits of course work including the course Industrial Education 100v, Orientation to Teaching Vocational Industrial Education Subjects, Industrial Education 6v, Methods in Vocational Education, Industrial Education 12v, Special Methods in Related Subjects, and Industrial Education 19v, Observation and Practice Teaching, will be established as the professional component of Level I certification for vocational education.

3. To assess in a real school setting the level of competency that was achieved by the participants in the pilot in-service CBTE program.

4. To plan, organize and operate a pilot Competency-Based Teacher Education program for preservice industrial education teachers at the University Park Campus of The Pennsylvania State University.

5. To incorporate the findings of Phase I of The Pennsylvania State University Model for CBTE Development with the learning strategies utilized in the course Industrial Arts Education 464, Curriculum and Instruction, and the course Industrial Arts Education 465, Pre-professional Experience in Industrial Studies, for the purpose of effecting a competency-based approach to the preparation of preservice industrial education teachers at Level I certification.

6. To assess (in a real school setting as a function of the student teaching experience) the level of competence that was achieved by the participants of the pilot pre-service CBTE program.

7. To move toward a more complete competency-based teacher education approach to providing student teaching experience for in-service industrial education teachers. The PBTE Modules developed by the Center for Vocational Education at the Ohio State University will be utilized as one means of developing teacher competencies normally associated with this field experience.

8. To study and plan for a university-based instructional resource center in support of the CBTE program. Implications for establishing satelite instructional resource centers at field locations will be considered.

9. To provide an orientation to CBTE for resident resource persons representing industrial education programs and schools throughout the Central region of the Commonwealth of Pennsylvania.

A flow chart which illustrates the interrelationship between each of these objectives may be found in Figure 2.

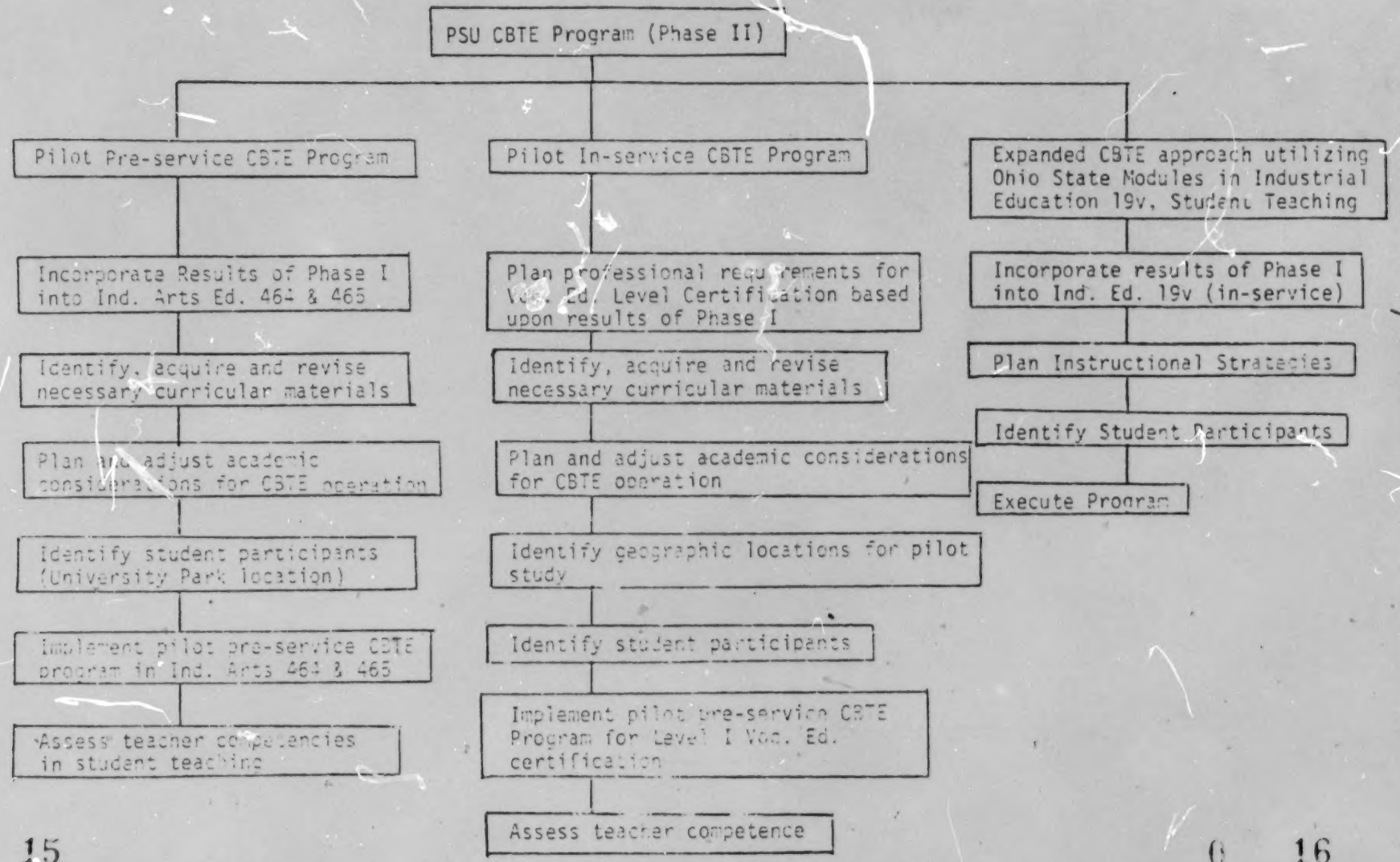
Figure 2

PHASE II - Flow Chart

The Pennsylvania State University Model

For

CBTE Development


PSU CBTE Program (Phase II)
Pilot Pre-service CBTE Program
Incorporate Results of Phase I into Ind. Arts Ed. 464 & 465
Identify, acquire and revise necessary curricular materials
Plan and adjust academic considerations for CBTE operation
Identify student participants (University Park location)
Implement pilot pre-service CBTE program in Ind. Arts 464 & 465
Assess teacher competencies in student teaching
Pilot In-service CBTE Program
Plan professional requirements for Voc. Ed. Level Certification based upon results of Phase I
Identify, acquire and revise necessary curricular materials
Plan and adjust academic considerations for CBTE operation
Identify geographic locations for pilot study
Identify student participants
Implement pilot pre-service CBTE Program for Level I Voc. Ed. certification
Assess teacher competence
Expanded CBTE approach utilizing Ohio State Modules in Industrial Education 19v, Student Teaching
Incorporate results of Phase I into Ind. Ed. 19v (in-service)
Plan Instructional Strategies
Identify Student Participants
Execute Program

CHAPTER II

PILOT INSERVICE CBTE PROGRAM

Relationship of CBTE to Level I Certification Established

Vocational industrial education teachers are currently required to complete twelve credits of professional vocational industrial education course work in order to meet the minimum requirements for Level I certification. The competencies that were preceived by inservice vocational industrial education teachers as being most important to beginning vocational industrial education teachers, and recorded in Phase I of this project, were incorporated into the pilot inservice CBTE program.

These competencies were directly associated with PBTE modules developed by the Center for Vocational Education at The Ohio State University. The emphasis of each of these modules was directly associated with an existing course which is available through The Pennsylvania State University, and the basis for delivering the pilot CBTE program was established. Following is an outline of the requirements for the successful completion of the pilot inservice CBTE program:

Professional Requirements for Level I Certification — 12 credits

- I. Ed. 100v - Orientation to Voc. Ind. Ed. Teaching — 2 credits

  (Planned to be Offered as a New Teacher Workshop)

- I. Ed. 6v - Methods in Vocational Education — 2 credits

  Module B-2 (Develop Student Performance Objectives)

  Module B-4 (Develop a Lesson Plan)

  Module C-10 (Introduce a Lesson)

  Module C-11 (Summarize a Lesson)

  Module C-16 (Demonstrate a Manipulative Skill)

I. Ed. 12v - Special Methods in Related Subjects — 2 credits

- Module B-1 (Determine Needs and Interests of Students)
- Module B-3 (Develop a Unit of Instruction)
- Module C-12 (Employ Oral Questioning Techniques)
- Module C-15 (Present an Illustrated Talk)
- Module C-29 (Present Information with the Chalkboard and Flip Chart)

I. Ed. 19v - Observation and Practice Teaching — 6 credits

- Module B-5 (Select Student Instructional Materials)
- Module B-6 (Prepare Teacher Made Instructional Materials)
- Module C-5 (Employ Simulation Techniques)
- Module C-9 (Employ the Project Method)
- Module C-17 (Demonstrate a Concept or Principle)
- Module C-23 (Present Information with Overhead and Opaque Materials)
- Module D-6 (Evaluate Your Instructional Effectiveness)
- Module E-5 (Provide for Student Safety)
- Module E-6 (Provide for the First Aid Needs of Students)
- Module E-7 (Assist Students in Developing Self-discipline)
- Module E-8 (Organize the Vocational Laboratory)
- Module E-9 (Manage the Vocational Laboratory)

Geographical Area for Pilot Inservice CBTE Program Established

The pilot inservice CBTE program was to be operated in a selected school system within the Central Region of Pennsylvania. It was important that a reasonable number of inservice vocational industrial education teachers who needed Level I certification be identified within the

selected school system so that the pilot in-service CBTE program could be put to an honest test. Lancaster County, represented by the Stevens Trade School, the Willow Street Area Vocational Technical School, the Mt. Joy Area Vocational Technical School, and the Brownstown Area Vocational Technical School, was selected as the pilot site because of the availability of beginning vocational industrial education teachers.

Participants in the Pilot In-service CBTE Program

Thirteen beginning vocational industrial education teachers participated in the pilot in-service CBTE program. Two of these teachers were located at the Stevens Trade School, one teacher was located at the Brownstown Area Vocational Technical School, one teacher was located at the Mt. Joy Area Vocational Technical School, and nine teachers were located at the Willow Street Area Vocational Technical School.

An orientation to the CBTE program was held for the 13 participants at the beginning of the 1978 Summer term. At this time a personal interview was scheduled for each of the 13 teachers in order to confirm their agreement to participate in the pilot program, to clarify the requirements for competency achievement, to distribute the initial set of PBTE modules, and to evaluate the level and status of professional academic achievement.

The students participating in the pilot program represent 11 different occupational areas including health assistants and quantity food preparation, had completed anywhere from 5 to 105 credits of college work for an average of 25.5 credits per student, were from 25 to 55 years of age with a mean age of 38.3 years old, had anywhere from 6 to 41 years of occupational experience for an average of 17.8 years, and had completed an average of 2 years of teaching experience.

Adjustment to Academic Considerations

Academic considerations such as time-line requirements, the assignment of college credits, grading, and the supervision of competency assessment were deliberated, and methods of treatment agreed upon.

The pilot in-service CBTE program was delivered through continuing education at The Pennsylvania State University. The 13 participants in the pilot program were supervised by a full-time member of the vocational industrial education faculty. This faculty member visited each of the participants in their respective classrooms no less frequently than once each week. During these meetings the participants had an opportunity to discuss the progress they were making with the PBTE modules, or to demonstrate their proficiency for a given module by completing the final learning experience. Additional characteristics of the pilot in-service CBTE program were as follows:

1. Open entry - open exit;
2. Self paced;
3. Criterion referenced grading; and
4. Minimum performance per credit assignment made public.

Evaluation of the Pilot and In-service CBTE Program

The pilot in-service CBTE program was evaluated with the use of the instrument illustrated in Appendix A. In addition to the demographic data which was collected and reported in the section describing the participants in the study, the evaluation instrument dealt with data pertaining to student perception of the Instructional Modules, CBTE delivery system, the resource person, and module classification. Each of these areas of concern will be dealt with in turn.

With regard for the use of PBTE modules as the primary source of reference during the acquisition of pedigogical competencies, the participants indicated the following:

a. it took an average of 8.7 hours of work to complete each module excluding time spent in executing the final learning experience;

b. 11 of the 13 students feel that the modules required a reasonable amount of time to complete;

c. the modules and the resource person were equally important in the achievement of competencies specified;

d. the modules were clearly stated;

e. on the average, they did not complete the optional learning experiences;

f. the required learning experiences were presented clearly;

g. content of the information sheets was just right in length and scope;

h. the information contained in the modules was relevant to everyday teaching; and

i. that the use of the modules was an efficient way of developing their teaching competencies.

Student perceptions of the Competency Based Teacher Education delivery system were recorded as follows:

a. the purpose of the CBTE delivery system had been clearly explained to them and they understand it;

b. the method of evaluating successful achievement of the various competencies was fair and consistent;

c. with few exceptions felt that the CBTE delivery system was better then the traditional system of teacher educators;

d. 12 of 13 students enjoyed the CBTE system more then they enjoyed the traditional method of instruction;

e. 12 of 13 students felt that the requirements to complete the CBTE program were <u>not</u> too difficult;

f. 9 of 13 students felt that the number of credits assigned to this experience was realistic. The remaining 4 students felt that the number of credits should have been increased.

g. in response to the question, "What did you like best about the system of instruction?" The following responses were recorded:

1. everything
2. it was self-paced
3. the one to one relationship
4. the variety of competencies dealt with
5. self-scheduling
6. actual classroom environment
7. convenience

h. in response to the question, "What did you like least about this system of instruction?" The following responses were recorded:

1. it interfers with the on going class
2. the time required to complete the work
3. none
4. certain modules were too long
5. difficult to motivate self to study

The relationship of the resource persons to this system of teacher education delivery was perceived by the students as follows:

a. visited frequently enough;

b. spent enough time with each teacher;

c. held enough group meetings to satisfy the needs of the students;

d. made the classroom teacher feel at ease;

e. made the classroom teacher aware of what was expected;

f. was knowledgeable; about the competencies;

g. was helpful in relating the competencies to everyday teaching;

h. was sensitive to the individual teacher's needs;

i. was fair in evaluating teacher performance;

j. provided additional material to support the modules;

k. did not interfere with normal classroom operation;

l. did not cause an unreal classroom atmosphere to prevail; and

m. did not alienate the student body by his or her presence

In terms of module qualification, the majority of students classfied all of the modules as making an average or better contribution toward helping their students learn. One student had indicated a low contribution to each of the modules dealing with the chalkboard, simulation, and student needs while three students indicated a low contribution for the module on first aid. Perhaps this may be explained by the fact that two of the three students represented the nursing field and felt that this subject matter had adequately been dealt with elsewhere in their curriculum.

Interpretation of the composite results of the administration of the CBTE evaluation instrument dictates that positive conclusions be drawn about in-service teachers' perceptions of CBTE. Justification for the delivery of a Competency Based Teacher Education program for level I certification throughout the Central Region of Pennsylvania is established.

CHAPTER III

PILOT PRESERVICE CBTE PROGRAM

Statement of the Problem

The problem was to complete the second phase of a three phase, three year, project which was to initiate and assess a preservice module of Competency Based Industrial Teacher Education. Specifically, the objectives of the preservice portion of the Phase II project were as follows:

1. to plan, organize and operate a pilot Competency Based Teacher Education program for preservice industrial education teachers at The Pennsylvania State University;
2. to incorporate the findings of Phase I of The Pennsylvania State University CBTE project with the learning strategies utilized in the course Industrial Arts Education 464, Curriculum and Instruction, and the course Industrial Arts Education 465, Pre-professional Experience in Industrial Studies, for the purpose of effecting a competency-based approach to the preparation of preservice industrial education teachers at Level I certification;
3. to assess (in a real school setting as a function of the student teaching experience) the level of competence that was achieved by the participants of the pilot, preservice CBTE program.

In order to meet these objectives, the following activities were performed during the course of the Phase II project:

1. The competency statements were identified from the Phase I portion of the three-phase project.
2. Criteria statements were developed for the competency statements.
3. Modules that addressed the competency statements were either identified or developed.
4. The preservice CBTE delivery system was designed and implemented.
5. An evaluation system was designed and implemented.
6. The results of the evaluation were analyzed and reported.

This chapter addresses these six points and others in detail.

Introduction

The preservice CBTE component of the project was begun Summer Term, 1978. During the Fall and Winter Terms (1978 and 1979), twenty-seven undergraduate industrial arts majors enrolled in Industrial Arts Education 464 and Industrial Arts Education 465 took part in the pilot study. Undergraduate, preservice vocational industrial education courses could not be used because of the lack of enrollments.

Industrial Arts 464, Curriculum and Instruction, and Industrial Arts 465, Preprofessional Experience in Industrial Studies, are the last of a sequence of professional courses for preservice industrial arts majors and are designed to be taken together just before the practice teaching internship. Industrial Arts 464 develops skills in the areas of course design, unit and lesson planning, classroom/laboratory management and

other requisite skill areas. Industrial Arts 465 affords the learner the opportunity to apply the skills developed in Industrial Arts 464 in actual and simulated, secondary classrooms and laboratories.

The preservice pilot model was developed during the Summer Term, 1978 and implemented in three stages. Stage I was begun Fall Term, 1978 in Industrial Arts 464 and 465. The purpose of this step was to 1) locate and eliminate problems with the delivery system, and 2) develop additional pilot study material. Stage II was implemented during Winter Term, 1979. The purpose of this stage was to implement and evaluate the final form of the CBTE model in Industrial Arts 464 and 465. Stages III was implemented in Spring Term, 1979. The function of this stage was to: 1) evaluate the competence of the learners during their practice teaching internship, and 2) have the learners evaluate the CBTE pilot model in light of their internship experiences.

Description of the Pre-Pilot Activities

Before the pilot was begun, the following tasks were completed during Summer Term, 1978:

1. Industrial Arts 464 and 465 were task analyzed and competency and criteria statements were identified and written;
2. The delivery system for the preservice pilot was designed; and
3. The modules that were employed in the pilot were compiled.

This section discusses these tasks in detail:

The Identification of the Competency and Criteria Statements. The first task was to identify the competency statements and generate the criteria for competent performance. Since both Industrial Arts 464 and

Industrial Arts 465 were the last two professional courses in a prescribed series of courses in pedagogy, they were analyzed to ascertain their specific areas of padagogical skills. Twenty-eight competencies were identified from the list verified by Detwiler and Shemick (1979). These are displayed in Table 1. Table 2 lists the criteria developed for each of the 28 competencies.

With the exception of competency I-15, all of the competency statements were judged to be important skills for a first-year teacher by both vocational industrial and industrial arts teachers. Thus, 27 of the 28 competencies addressed in the pilot were viewed as pedagogical skills common to both vocational industrial education and industrial arts education by the teachers of both disciplines. Therefore, while the preservice pilot used industrial arts courses and students, the pilot data and results were generalizable to both disciplines.

The Selection of the Preservice Content Delivery System. The second task was to decide on a flexible content delivery system. From the onset, the project members agreed that a delivery system had to meet the following specifications:

1. The delivery system had to be designed for use by individuals, small groups, and classroom groups. Specifically, the system had to be designed to operate equally well using either independent, self-paced instruction or group instruction.
2. The delivery system had to be self contained. That is, the system had to be one which was, to a large extent, self-instructional requiring only minimal contact with a resource person.

Table 1

A LIST OF THE COMPETENCIES ADDRESSED IN THE PRE-SERVICE COMPONENT AND THE PERCENT OF THE TEACHERS IN THE FIELD WHO FOUND THEM IMPORTANT FOR A FIRST-YEAR TEACHER

Catagory A: Program Planning and Development	%
A-1: Develop a course outline.	85.7
Catagory B: Instructional Planning	
B-3: Write and sequence student performance objectives for a lesson.	74.7
B-5: Plan a unit of instruction.	92.8
B-6: Write student performance objectives for a unit . . .	77.1
B-7: Correlate unit content with on-the-job and/or laboratory experience	86.2
B-8: Determine group and individual learning experiences for a unit.	87.8
B-9: Write a lesson plan	95.2
B-20: Prepare instructional materials with a spirit duplicator.	94.7
B-22: Prepare instructional (Hard copy and transparency) materials with a copier	84.2
Catagory C: Instructional Execution	%
C-7: Employ oral questioning techniques.	96.7
C-12: Give an illustrated lecture	94.0
C-13: Demonstrate a manipulative skill	100.0
C-14: Demonstrate a concept or a principle.	95.2
C-18: Present information with sound and silent filmstrips.	91.3
C-19: Present information with sound and silent slides. . .	88.5
C-20: Present information with sound and silent motion pictures.	93.3
C-21: Present information with sound and silent single concept films	81.6
C-22: Present information with the aid of a chalkboard. . .	68.8
C-23: Present information with the aid of a chart	95.1
Catagory D: Instructional Evaluation	
D-4: Develop tests that measure manipulative skills. . . . (Note: Competencies dealing with testing knowledge and attitudes are dealt with in another course run by curriculum and instruction).	77.8
Catagory E: Instructional Management	%
E-1: Integrate safety and health into each industrial education course offering	98.9
E-3: Organize and maintain the physical facilities and instructional resources of the course	89.1
E-5: Formulate with students acceptable standards of behavior in classrooms and laboratories	88.0

(Table 1 Continued)

		%
E-6:	Uphold acceptable standards of student behavior in classrooms and laboratories	100.0
E-9:	Maintain a record of financial transactions	86.4
E-11:	Maintain a record of supply, inventories, and equipment maintenance	93.6
E-14:	Organize a student personnel record system.	70.2
Category I: Professional Role and Development		
*I-15:	Develop a personal philosophy of industrial education for the elementary, middle, junior, senior, and post high school	80.6

* Viewed as a competency unique to industrial arts

Table 2

LIST OF COMPETENCY STATEMENTS WITH
STATEMENTS OF CRITERIA

1. Competency B-3: Each student will write and sequence objectives for one (1) information lesson one (1) demonstration lesson according to the following criteria:

   a. All objectives will be written and evaluated according to specified criteria that will be given to each student at the beginning of the course.

   b. All objectives will be written so that any professional or any person who reads them will clearly understand their meaning.

   c. The student will be required to demonstrate his/her ability to write affective, cognitive and psychomotor objectives.

   d. All objectives must be capable of being made operational through instruction and evaluation.

   e. Each student will be required to demonstrate his/her knowledge of the rationale for writing objectives on written tests and discussions.

   f. Each student will be able to evaluate previously constructed objectives and rewrite them according to specified criteria.

2. Competency B-9: Using the objectives that have been developed, each student will write one (1) information lesson plan and one (1) demonstration lesson plan according to the following criteria:

   a. All lesson plans will be written according to a uniform format which has been developed by the faculty. Copies of this format will be provided by the instructor at the beginning of the course.

   b. All lesson plans will be written using correct English language construction and spelling.

   c. All lesson plans must be written so that the required delivery time does not exceed twenty (20) minutes.

   d. All lesson plans must be written so that any other person who reads them will clearly understand their purpose, content, and method.

Table 2 (Cont'd)

e. All lesson plans must be written so that another teacher of the same subject will be able to deliver the same content using those lesson plans.

f. Each student will demonstrate his/her knowledge of the rationale and procedures in lesson plan construction through written tests and discussions.

g. All lesson plans will be evaluated using the lesson plan evaluation form. Copies of this form will be supplied to each student at the beginning of the course.

3. Competency C-7: Each student will demonstrate his skill in the use of oral questioning techniques when presenting his lessons before his peers according to the following criteria:

a. Each student will demonstrate his/her knowledge of the theories and methods of oral questioning techniques through written tests, performance tests, and discussions.

b. Each student will develop a set of oral questions for each of the required lesson plans and incorporate these questions at appropriate positions within the introduction, content, and summary sections of the lesson plans.

c. Each student's technique will be evaluated by both the teacher and his peers during the simulated lessons before his/her peers.

d. Each student will evaluate his/her own performance by viewing a video tape of his/her presentation.

e. All questioning techniques will be evaluated using the oral questioning evaluation form. Copies of this form will be supplied to each student at the beginning of the course.

4. Utilizing the required information and demonstration lesson presentations, the student will demonstrate his ability to produce and/or use the following instructional materials:

a. Spirit Duplicator B-20: The student will prepare one copy of each lesson plan for each member of his group using the spirit duplicator.

b. Copier B-22 and C-32, (i.e., Thermofax, Zerox, 3M) : The student will produce original transparencies to use with at least one of his required lesson presentations.

c. Filmstrips, Slides, and Motion Pictures (C-18, 19, 20, 21): The student will use at least one of these vehicles during one of his required lesson presentations. (optional)

Table 2 (Cont'd)

d. Chalkboard (C-23): The student will demonstrate his skill using the chalkboard during all his lesson presentations.

e. The student will demonstrate his knowledge of the rationale, procedures, and application of media through written and oral evaluations.

f. All instructional materials will be evaluated using the instructional materials evaluation forms. Copies of these forms will be supplied to each student at the beginning of the course.

5. Competencies C-12, C-13, and C-14: Each student will present two (2) illustrated information lessons and two (2) demonstration lessons before his peers according to the following criteria:

a. Each lesson will be no more than twenty (20) minutes in length (15 minutes is ideal).

b. The lesson plans that are used for the lessons will be those that have already been developed in IA Ed. 464.

c. Each student will be evaluated by both his teacher and his peers for the purpose of improving delivery techniques.

d. Each student will evaluate his/her own performance by viewing a video tape of his/her presentation.

e. All lesson presentations will be evaluated using the lesson evaluation forms. Copies of these forms will be supplied to each student at the beginning of the course.

6. Competency C-7: Each student will demonstrate his skill in the use of oral questioning techniques when presenting his lessons before his peers according to the following criteria:

a. Each student will demonstrate his/her knowledge of the theories and methods of oral questioning techniques through written tests, performance tests, and discussions.

b. Each student will develop a set of oral questions for each of four required lesson plans and incorporate these questions at appropriate positions within the introduction, content, and summary sections of the lesson plans.

c. Each student's technique will be evaluated by both the teacher and his peers during the simulated lessons before his/her peers.

d. Each student will evaluate his/her own performance by viewing a video tape of his/her presentation.

Table 2 (Cont'd)

e. All questioning techniques will be evaluated using the oral questioning evaluation form. Copies of this form will be supplied to each student at the beginning of the course.

7. Utilizing the required information and demonstration lesson presentations, the student will demonstrate his ability to produce and/or use the following instructional materials:

   a. Spirit Duplicator B-20: The student will prepare one copy of each lesson plan for each member of his group using the spirit duplicator.

   b. Copies B-22 and C-32, (i.e., Thermofax, Xerox, 3M) : The student will produce original transparencies to use with at least one of his required lesson presentations.

   c. Filmstrips, slides, and Motion Pictures (C-18, 19, 20 and 21): The student will use at least one of these vehicles during one of his required lesson presentations. (optional)

   d. Chalkboard (C-23): The student will demonstrate his skill using the chalkboard during all his lesson presentations.

   e. The student will demonstrate his knowledge of the rationale, procedures, and application of media through written and oral evaluations.

   f. All instructional materials will be evaluated using the instructional materials evaluation forms. Copies of these forms will be supplied to each student at the beginning of the course.

8. Competency A-1: Each student will develop a course outline according to the following criteria:

   a. The course outline will be written using a standard format provided to each student at the beginning of the course.

   b. The course outline will be written using correct English language construction and spelling.

   c. The course outline will be written so that any other person who reads it will clearly understand its content.

   d. The course outline must be written so that another teacher of the same subject would be able to use the outline to develop and implement the course.

Table 2 (Cont'd)

9. Competency B-6: Each student will write student performance objectives for a unit of instruction according to the following criteria:

   a. All unit objectives will be written and evaluated according to the guidelines provided to each student at the beginning of the course.

   b. All objectives will be written so that any other professional educator of the same subject area clearly understands their meaning.

   c. The objectives will include the affective, psychomoter, and cognitive domains.

   d. All objectives must be capable of being made operational through instruction and evaluation.

10. Competency B-5: Each student will plan a unit of instruction according to the following criteria:

   a. All unit plans will be written using standard formats and guidelines which will be provided to each student at the beginning of the course.

   b. All unit plans must be written so that any other person who reads them will clearly understand their purpose, content, and methods.

   c. All unit plans must be written so that any other person who reads them will clearly understand their purpose, content, and methods.

   d. All unit plans must be written so that another teacher of the same subject would be able to write essentially the same daily lesson plans using those unit plans.

   e. Each student will demonstrate his/her knowledge of the rationale and procedures in unit plan construction through written tests and discussions.

   f. All unit plans will be evaluated using a unit plan assessment form which will be provided to each student at the beginning of the course.

11. Competency B-7: Each student will correlate unit content with on-the-job and/or laboratory experience according to the following criteria:

Table 2 (Cont'd)

a. Each unit plan will clearly indicate the relationships between cognitive and psychomotor student activities.

b. Each unit plan will clearly indicate the relationships between cognitive/psychomotor activities and industrial practices.

12. Competency B-8: Each student will determine group and individual activities according to the following criteria:

a. Each unit plan will clearly indicate all class activities.

b. Each unit plan will clearly indicate all individual laboratory activities.

13. Competency I-15: By the conclusion of this module, each student will have developed a personal philosophy of industrial arts education for the elementary, middle, junior and senior high schools by doing the following:

a. Defining general education and its purpose in a democratic society.

b. Defining industrial arts and explaining its role as a part of general education.

c. Relating the essence of the four nationally recognized policy statements that have influenced industrial arts.

d. Relating the characteristic needs of children and discussing how industrial arts meets those needs.

e. Relating how general education has influenced industrial arts education.

f. Defining your role and responsibilities as an industrial arts teachers.

14. Competency D-4: Each student will develop tests that measure manipulative skills according to the following criteria:

a. Each student will write object tests and performance tests following a standard format provided to each student at the beginning of the course.

b. The tests will be written using correct English language construction and spelling.

Table 2 (Cont'd)

c. The tests will be written so that any other teacher of the same subject would be able to administer, score, and grade the tests.

d. All tests will be evaluated using a performance test assessment form provided to each student at the beginning of the course.

15. Competency E-11: Each student will demonstrate the ability to develop and maintain a record of supplies, inventories, and equipment maintenance according to the following criteria:

a. Each student will demonstrate his knowledge of accepted methods and procedures on written tests and in group discussion.

b. Each student will demonstrate his knowledge of accepted record keeping methods and procedures by evaluating examples provided by the instructor.

16. Competency E-9: Each student will demonstrate the ability to develop and maintain a record of financial transactions according to the following criteria:

a. Each student will demonstrate his knowledge of accepted methods and procedures on written tests and in group discussion.

b. Each student will demonstrate his knowledge of accepted record keeping methods and procedures by evaluating examples provided by the instructor.

17. Competency E-3: Organize and maintain the physical facilities and instructional resources of the course according to the following criteria:

a. Each student will describe a practical method of establishing a pupil-personnel system when given a written examination or in group discussion.

b. Each student will describe three methods of organizing activities in the multi-field laboratory (general shop) when given a written examination and in group discussions.

Table 2 (Cont'd)

18. Competencies E-5 and E-6: Formulate and uphold acceptable standards of student behavior in classrooms and laboratories according to the following criteria:

    a. Each student will demonstrate knowledge of the concepts of, and important considerations involved in, classroom discipline through group discussions and written examinations.

    b. After reading the monograph, Guidelines for School Discipline (PDE, 1976), each student will be able to define the four levels of student misconduct and the associated procedures and disciplinary options.

    c. After reading several case studies describing how hypothetical teachers handles discipline problems, each student will critique the performance of those teachers.

19. Competency E-14: Each student will demonstrate the ability to develop and maintain a student personnel file according to the following criteria:

    a. Each student will demonstrate his knowledge of accepted methods and procedures on written tests and in group discussion.

    b. Each student will demonstrate his knowledge of accepted record keeping methods and procedures by evaluating examples provided by the instructor.

20. Competency E-1: Each student will integrate safety and health into each course offering according to the following criteria:

    a. Each student will demonstrate the ability of integrating safety into each lesson plan.

    b. Each student will demonstrate his knowledge of the methods employed to develop and implement a procedure to check tools, machines, equipment and supplies, and to maintain a record of these safety checks.

    c. Each student will demonstrate his knowledge of methods to employ in reducing problems associated with liability resulting from school-related pupil injuries.

21. Competencies B-8, B-9: Determine group and individual learning experiences for units of instruction and lesson plans according to the following criteria:

Table 2 (Cont'd)

a. Each student will be able to select appropriate instructional methods when given a list of units and associated lesson titles.

b. Each student will be able to define ten different methods of instruction, their characteristics and methods of application when given short essay questions.

c. Each student will be able to demonstrate his ability to write lesson plans for ten different methods in instruction when given a lesson plan writing assignment.

d. Each student will be able to demonstrate his ability to use multiple methods of instruction when asked to teach in an actual classroom.

3. The delivery system had to be easily transportable. Specifically, the project members agreed that the model had to be operable either in the field or on campus.
4. The delivery system had to be cost-effective. That is, it had to be only slightly more expensive to operate than the traditional university model of intact, in place of classroom instruction.

In summary, the preservice model was conceivable as one to be employed with equal effectiveness either on campus or in the field with either preservice or inservice vocational industrial or industrial arts teachers.

Based on these specifications, three modes of content delivery were selected: 1) text written in the form of modules; 2) traditional textbook as supplementary text; and 3) videotaped information lessons given by a content expert from the faculty. Using these three modes of delivery, the project members felt that any course, or group of competencies or a single competency could be taught in a traditional classroom environment, on an individual basis, or on a small group basis to preservice teachers on campus. Further, the delivery system allowed entire education programs to be produced on campus and carried into the field by resource persons for inservice use. Finally, the cost of video tape equipment did not significantly add to the cost of operation. Thus, the content delivery system met the requirements established by the project members.

Development of the Modules used in the Preservice Pilot. The final task was to develop the modules that were to be used in preservice pilot. Instructional modules were either selected from those developed by The Center for Vocational Education or were compiled from a number of other sources. The following is a list and explanation of the nine modules

used in the preservice pilot study:

1. Module 1: Develop Student Performance Objectives: This module was written by The Center for Vocational Education; Module B-2, Develop Student Performance Objectives. The module numeration was changed to conform to the sequence in which it was presented during the pilot.

2. Module 2: How to Write a Lesson Plan: This was the second module used during the pilot study. This module used original information sheets abstracted from The Center for Vocational Education's module B-4, Develop a Lesson Plan, and module C-23, Present Information with Overhead and Opaque Materials. Finally, original information sheets developed by the project team were included on suggested lesson plan formats.

3. Module 3: Presenting Lessons: This was the third module used during the pilot and was developed from a monograph of the same title written by William A. Williams at The Pennsylvania State University, 1968.

4 Module 4: Organizing and Developing Units of Instruction: This module, the fourth used in the pilot, contained original information sheets on writing a course outline and included The Center for Vocational Education's module B-3, Develop a Unit of Instruction.

5. Module 5: Develop a Personal Philosophy of Industrial Arts: This module used information sheets abstracted from the American Industrial Arts Association's publication, Industrial Arts Education (1969) and the American Vocational Association's Committee on Industrial Arts publication, A Guide to Improving Instruction in Industrial Arts (1969).

6. Module 6: How to Construct Object and Performance Tests: This module used an information sheet on the construction of object tests abstracted from Micheel and Karne's (1950) text, Measuring Educational

Achievement and directed the learner in the use of The Center for Vocational Education's module D-4, Assess Student Performance: Skills.

7. Module 7: Instructional Management: This the seventh module in the series, used an information sheet abstract from The Center for Vocational Education's module E-7, Assist Students in Developing Self Discipline and an information sheet developed from a Pennsylvania Department of Education publication, Guidelines for School Discipline.

8. Module 8: Methodology and Instructional Organization: This was the eighth module used in the preservice pilot. This module used information sheets on alternate instructional strategies abstracted from Donald A. Maley's (1978) The Industrial Art's Teacher's Handbook.

Each module was supplemented through readings in a required textbook, Industrial Arts in General Education, by William and Pendered (1973). The reading assignments were selected to provide additional information or alternative solutions to meeting competence.

9. Module 9: Reading and Industrial Arts: This module was the last in the series and was designed to develop skills in the selection of appropriate industrial arts reading material and in the use of the Fry Index of Readability. The module was written by Shemick and Meehan (1974) at The Pennsylvania State University. Since this module utilized a programmed format, it was atypical and therefore not used in the collection of pilot data.

Description of Stage I of the Preservice Pilot Study

The first stage of the pilot study was implemented during Fall Term, 1979. The participant in the pilot study were those undergraduate industrial arts majors enrolled in Industrial Arts 464 and 465 during

Fall Term, 1979. During this stage of the pilot study, the following tasks were accomplished:

1. The modules were evaluated and revised based on interviews held with individual participants and with the participants in group meetings;
2. Twenty-six, half-hour video taped lessons were produced;
3. The pilot evaluation system was designed; and
4. Cognitive tests were developed to compliment the performance activities.

This section discusses these activities in detail:

Description of the Pilot Organization. Industrial Arts Education 464 met on Monday, Wednesday and Fridays while Industrial Arts Education 465 met on Tuesdays and Thursdays. Thus, the students were in contact with the CBTE pilot five days a week.

While students met on a regularly scheduled basis for traditional lecture/discussion, attendance was not crucial since all lectures were video taped and at the disposal of the students from 8:00 AM until 5:00 PM Monday through Friday. Any classes missed could be made up at the students convenience. Further, the student had the option of viewing the video tape of any lecture when he desired and as often as he desired. These video tapes were produced during the scheduled class periods.

If a student was not satisfied with his performance, he had the opition of improving his level of competence. Evaluation criteria were made public prior to the beginning of the course. Evaluation was criterion based.

A student could advance competency-by-competency at his own pace. Since all lessons were on video tape and directed by the modules, a student could work at a pace that he determined. The pilot content was designed to take nine weeks, one week per module. The pilot ran for ten weeks' however. Finally, in case of illness or other difficulties, the student could receive an extension with no penalty.

Revision of the Modules. Because the content of both Industrial Arts 464 and Industrial Arts 465 were prescribed, intact modules from other sources could not be adapted in most instances. Therefore, eight modules were constructed from a number of sources during the Summer Term, 1978. These modules were tested and revised during Fall Term, 1978.

Comments about each module solicited by interviewing individual students and in meetings with the class members. Further, the resource persons noted typographical errors, inconsistencies, as well as other difficulties in the modules. All of the input was used to revise the modules during the Fall Term.

Production of the Video-Taped Lessons. A difficulty with the traditional lecture/discussion method is that it normally precludes the use of independent, self-paced, instruction. The classroom lecture/discussion is designed for lock-step instruction. If a learner misses a class meeting, he or she is in danger of falling permanently behind his or her peers. However, the lecture is an efficient method of transmitting imformation. A recognized expert can reach moderately large groups

of people. Further, it has been shown that classroom learning is synergistic. That is, total learning occurring in small to moderate groups is greater than the sum of the learning of the individual group members.

In order to preserve the synergistic aspects of the class meeting and meet the requirements of independent self-paced instruction, regular classes were held on scheduled days and each of the one half hour class lectures were video taped and placed in a library that was accessible to the students from Monday through Friday, 8:00 AM to 5:00 PM. This arrangement allowed individual class members to meet regularly with their peers, to organize their schedule according to their needs, and it afforded them the opportunity to view and review lectures from the content expert at will. Industrial Arts 465 required each student to present information and demonstration lessons before his peers in both simulated and actual secondary classrooms. The video equipment was also used to tape these presentations. These presentations were privately viewed and discussed by the resource person and the individual student.

During the course of the pilot, it was discovered that video tape equipment that had been designed for home use was adequate for recording both the lectures and the student lesson presentations. The cost of this equipment is 30% to 50% less expensive than industrial quality equipment. This greatly reduces the cost of operating this CBTE model.

The Preservice Pilot Evaluation System. A preservice pilot evaluation system was designed during the Fall Term, 1978 in cooperation with The Pennsylvania State University's Division of Instructional Services. The

evaluation system assessed the value, quality and usefulness of the CBTE preservice model by collecting frequent and systematic input from the following sources:

1. The students during the instructional portion of the pilot study; this is, prior to the practice teaching internship.
2. The students after the instructional portion of the pilot study; that is, during the practice teaching internship.
3. The resource persons.
4. The practice teaching field supervisors from the university.
5. The practice teachers' cooperating teachers in the intern's cooperating secondary school.

Description of the CBTE Evaluation Instruments. A 37 question attitude scale was developed to assess student attitudes toward each of the modules and the associated instruction along the following nine demensions:

1. The students' general feelings toward the modules;
2. The students' feelings toward the module's introduction;
3. The students' feelings toward the module's objectives;
4. The students' feelings toward the module's assignments;
5. The students' feelings toward the module's tests;
6. The students' feelings toward the video taped lectures;
7. The student's feelings toward the module's information sheets;
8. The students' feelings toward the textbook reading assignment;
9. The students' feelings toward the classroom lectures.

Each student was requested to complete this scale after completing each module. The results of the student reactions gave a week-by-week student

assessment of the preservice pilot. A copy of the attitude scale is shown in Appendix B. The data collected from this scale is presented in Appendix C. A detailed discussion of these instruments and the data collected appears in the following sections.

Three other instruments were developed during this period and refined during the course of the pilot study. These instruments were: 1) an evaluation instrument to be used by the university student teacher supervisor in assessing the competence of the teacher intern in the field; 2) an evaluation instrument to be used by the cooperating teacher in assessing the competency of the teacher intern in the field; and 3) an evaluation instrument to be used by the teacher intern in assessing the preservice pilot in retrospect. These instruments are displayed in Appendix D. A detailed discussion of the data collected appears in the following sections.

Description of the Congitive Tests. Knowledge is the basis for performance. While one can not assume competent performance from a demonstration of competent knowledge; neither is it possible to assume competent knowledge from competent performance. One can have competent knowledge about an important skill but not be able to perform that skill. One the other hand, one may be competent in a skill that involves important knowledge; however, one can not assume competent understanding of the knowledge on the basis of a few selected activities which sample the knowledge. Thus, knowing and doing are of equal importance but do not equate.

To insure that competence in both skills and knowledge was assessed, the project members developed eight multiple choice tests to assess each

student's knowledge of the content of the modules, text, and video lectures. These tests were administered when the students had completed each module. Thus, there were eight tests, as mid term examination, and a final examination. Coupled with the performance components of the pilot, these tests comprised an exhaustine measure of student knowledge as well as skill.

Summary

During Fall Term, 1979 Stage I in the preservice pilot study was initiated using the undergraduate industrial arts majors enrolled in Industrial Arts 464 and 465.

During this period the eight modules were field tested and revised; twenty-six, half-hour video taped lectures were produced; an evaluation system was designed, and the CBTE course organizational structure and delivery system was run on a trial basis.

Based on individual and group consultations with the students and resource persons, difficulties in the pilot model were identified and eliminated. The pilot model was then prepared for full implementation and assessment during the next stage.

Description of Stage II of the Preservice Pilot Study

Based on the evaluations received during Stage I, the eight pilot modules and the student attitude scale, How Do You Feel About This Module (Appendix B), were edited and revised. The pilot study was then fully implemented and evaluated during Stage II.

The participants in the second stage (full implementation) were those undergraduate industrial arts majors enrolled in Industrial Arts 464 and 465 during Winter Term 1979. The evaluation of the preservice

model was based on student reactions to the pilot as assessed by the attitude scale, by the reactions of the resource persons, and by the outcome of student performance.

The course organization, student evaluation methods, and content delivery system used in Stage II were the same as those employed in Stage I (after revision). The resource persons employed during Stage II were those employed during Stage I. The students involved in Stage II, however, were not the same as those that had participated in Stage I.

Presentation of the Pilot Study Evaluation Data. Each student evaluated each module and the associated instruction. Thus, the preservice pilot was evaluated module-by-module, or approximately once each week. The data collected from each evaluation were analyzed by the Likert computer program, a library program available at The Pennsylvania State University Computation Center. The data provided information about each aspect of the pilot on a weekly basis and provided student attitude trends during the course of the pilot study. At the end of the pilot, all of the data gathered on each module during the course of the pilot study were analyzed in mass to give an overall evaluation of the preservice model.

Table 3 displays the data collected on the overall effectiveness of the preservice pilot model as measured by the attitude scale; How Do You Feel About This Module (Appendix B). The mean attitude scores presented in the table represent the mean scores of each subscale across all modules. Thus, the mean attitude score for subscale 1 is an indication of how the students felt about the modules used in the course. A positive

TABLE 3

THE ATTITUDES OF THE PARTICIPANTS

TOWARD THE PRESERVICE CBTE PILOT

STUDY ACROSS ALL MODULES (N=97)

Subscale	Attitudes Toward	Reliability	Calculated Average (Neutral Attitude)	Mean Attitude Sc
1	Overall Attitude Toward All Modules	.83	27	29.72 +
2	The Modules' Introductions	.88	6	7.10 +
3	The Modules' Objectives	.70	6	7.25 +
4	The Modules' Learning Experiences	.80	18	20.86 +
5	The Modules' Tests	.77	12	10.89 -
6	The Availability of Video Lectures	.73	6	7.10 +
7	The Modules' Information Sheets	.83	9	10.10 +
8	The Textbook Reading Assignments	.81	9	9.31 +
9	The Classroom Lectures	.90	9	9.66 +

score after the attitude score indicates that the students rated it better than average. A negative sign after the mean attitude score indicates that the student rated it worse than average. The average score is neutral attitude, has been calculated and is given in the column to the left of the mean attitude score. A table displaying the student responses to the questions on the attitude scale is displayed in Appendix D.

Question 37 on the evaluation instrument asked each student how he felt about the methods of instruction used in the pilot study in comparison to traditional methods. Table 4 summarizes the response.

Question 36 asked each student to grade the overall quality of the modules. Since the module represented the sum total of all the learning experiences in which he engaged, it was used as another indicator of the way students judged the quality of the pilot study. Table 4 displays the data.

Each time the students completed a module, they evaluated it using the attitude scale. Figure 1 graphs the mean attitudes of the pilot participants toward each module. Since the modules were taken in sequence at the rate of approximately one-per-week, Figure 1 is a graph of the trends of attitudes from the beginning to the end of the study.

Analysis of the Data Collected During Step II. Comparing the self-paced form of instruction and criterion based grading used in the pilot to the traditional type of instruction, (Table 4) 81.9 percent of the participants felt that the CBTE approach was as good as or better than traditional methods. While 18.1 percent of the participants felt that the pilot methods were worse than traditional methods, 42.5 percent felt

TABLE 4

STUDENT ATTITUDES TOWARD THE METHODS OF INSTRUCTION

USED IN THE PRESERVICE CBTE PILOT STUDY (N-97)

Superior to Traditional Methods	Equal to Traditional Methods	Worse than Traditional Methods
42.5%	39.4%	18.1%

that the methods were superior. During the course of the study, the resource persons observed that students had great difficulty in budgeting their time in a self-paced mode. Through individual and group consultations, it was discovered that students tended to put off CBTE assignments. The reason for this was that the traditional classes in which the students were also enrolled had time limits imposed on assignments. CBTE participants tended to set aside the CBTE assignments until the last moment in order to meet the deadlines imposed by their other classes. This problem was partially eliminated by providing the students with a calendar of target dates for CBTE assignments. This helped them budget their time more efficiently.

According to the data presented in Table 5, 48 percent of the students felt that the overall quality of the modules was above average and about one third felt them to be of fair quality. Only 18.7 percent felt them to be below average quality. This figure corresponds nicely with the 18.7 percent that judged the CBTE methods to be worse than traditional methods of instruction lending further support to the contention that certain individual learning styles function better under at least one other instructional method.

From the trend line shown in Figure 1, it is obvious that the attitudes of the students varied from week to week across modules. The drop in positive attitudes between modules one and two is attributed to the Hawthorne affect. However, there are meaningful changes in attitude during the period of time when modules five and six were studied. Module 5, Develop a Personal Philosophy of Industrial Arts, was not viewed as being as important as some of the other skills covered. Further, it involved the writing of a detailed rationale and philosophy for industrial

TABLE 5

STUDENT PERCEPTION OF THE OVERALL QUALITY OF

THE MODULES USED IN THE PRESERVICE CBTE PILOT STUDY

Excellent	Good	Fair	Poor	Very Poor
11.5%	36.5%	33.3%	11.5%	7.2%

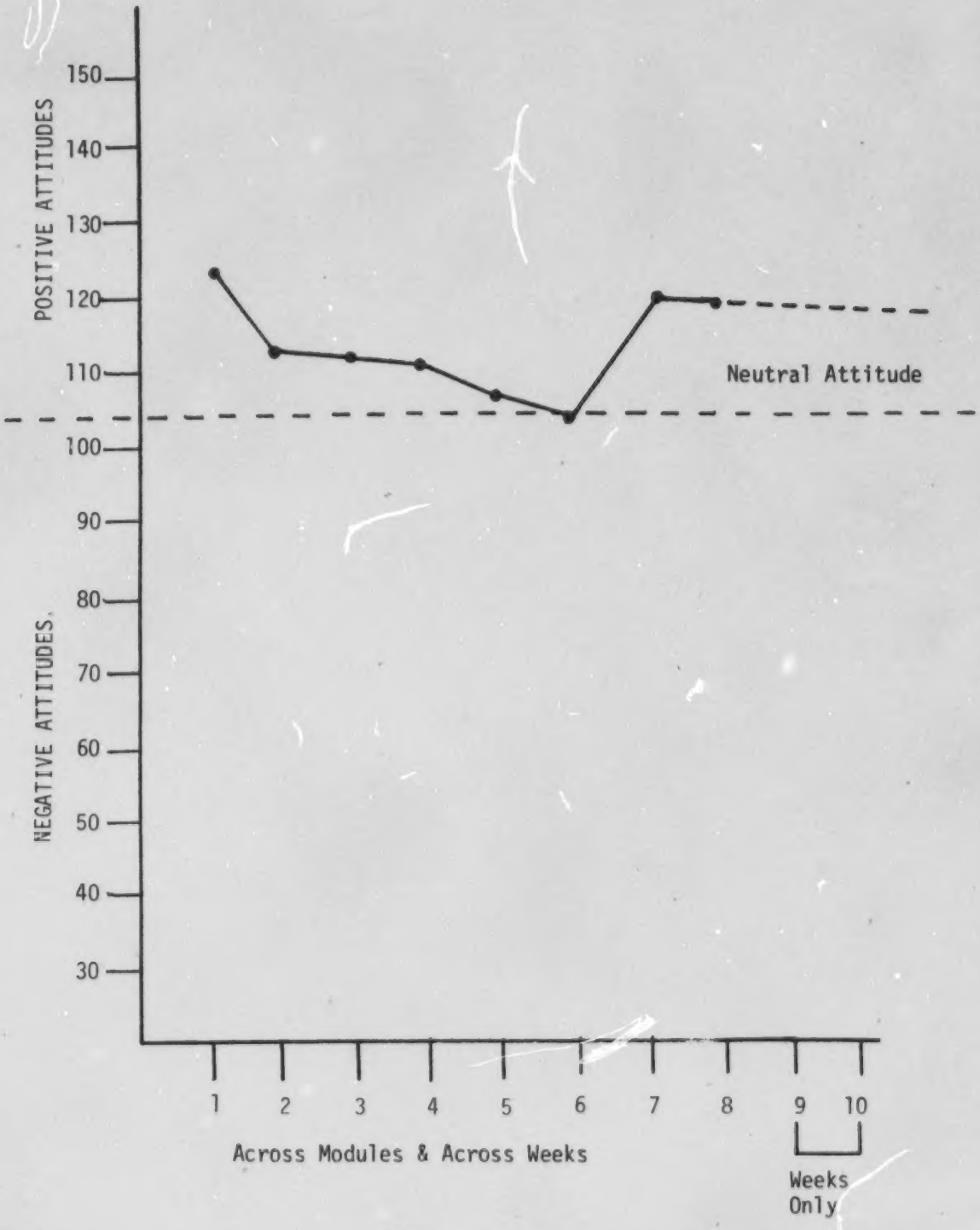


Figure 3

Mean Attitude of the Students Toward the Preservice CBTE Pilot Across Modules and Across Weeks

arts education. Eighty percent of the teachers in the field view this a requisite skill for a beginning teacher (Table 1). Obviously, the students do not. The relatively low attitude score for Module 6, How to Construct Object and Performance Tests, came as a surprise. The module is a hybrid of information sheets abstracted from two sources (see page 31). After interviewing the participants, it was discovered that The Center for Vocational Education's module D-4, Assess Student Performance: Skills, was viewed as inadequate in its explanation of the methods used in constructing performance tests. The students felt that the module's approach was cursory. In analyzing the results of the student responses to the attitude scale (Appendix D), it was possible to draw some general conclusions about each aspect of the preservice CBTE model. The following is a discussion of the preservice model as seen by the end-user, the student.

In reference to subscale 1, the majority of the students felt that the modules were well written and organized. More than 58 percent of the students felt that the modules were well written as compared to 14.5 percent who thought they were poorly written. A substantial portion of the students (27.2 %) had no strong positive or negative feelings about the quality of the writing. This was interpreted to mean that those students found the quality of writing to be no better or worse than the majority of text material with which they had come into contact. Sixty-seven percent of the students felt that the modules were well organized, while only 15.5% felt that they were poorly organized.

In general, the students viewed the modules as demanding original thinking (54.7%), yet they were easy to read (60.1%). The project members

were pleased with this result, since this had been the intent during the module design phase. Even though the module demanded original thinking and were relatively easy to read, the students had mixed feelings about "enjoying" the modules. Further, while 40.2 percent of the students felt that the modules contained about the right amount of structure and guidance for efficient learning, 28.9 percent apparently felt that the modules' structure was no better or worse in this respect than the average text material. On the other hand, 30.9 percent felt that the modules' structure and guidance was not as good as it could have been.

Thirty-seven percent of the students felt that they had enough time to complete the assignments, while 22.7 percent had no strong feelings about this. Significantly, 40.2 percent felt that they did not have enough time to complete the modules. This is understandable, since the modules were designed to be demanding. Further, it should be noted that all of the students completed all of the modules successfully within the predicted time limits. Therefore, while many students felt that they did not have sufficient time, in reality they all had enough time.

Since the modules were designed to be as self-instructional as possible, it was hoped that the students' would perceive them as a reference tool for use during their practice teaching internship. Fifty-two percent of the students felt that the modules would be a good source of reference, while 28.9 percent had no opinion. On the other hand, only 28.5 percent felt that the modules would not be a useful reference source during the intership.

Finally, 43.3 percent felt that the resource persons were always available when needed. Only 27.5 percent felt they the resource persons

were not always available when needed. Thirty-nine percent evidently felt that the CBTE resource person was no more available than any other instructor.

Any good lesson or module should contain an introduction which orients the student to the tasks at hand. Referring to subscale 2, it is clear that the students felt that this was the case.

Subscale 3 deals with the "objectives" of the modules which were the competencies and associated statements of criteria. The majority of the students felt that the objectives clearly stated what was to be learned and performed (66%) and clearly indicated the basis on which they were evaluated (60.8%).

In general, the students felt that the learning experiences that they performed helped prepare them to be better teachers. Over 55 percent of the students felt that the learning experiences helped them in their teacher preparation, while only 21.6 percent felt that the learning experiences did not. About 22 percent had no opinion. Approximately 46 percent felt that these experiences were of average difficulty. On the other hand, about 32 percent of the students felt that the learning experiences were not difficult. The results further indicate that the learning experiences were congruent with the objectives (63.9%), and that the directions for completing the learning experiences were adequately explained (78.4%). Finally, the students clearly liked the idea of being able to repeat learning experience to improve their grades (81.7%).

While 37 percent of the students felt that the cognitive tests did not accurately assess what they were supposed to study and learn, 31.9 percent had no strong opinions one way or the other. There was no clear

feelings about the "fairness" of the test either. Forty-four percent had no opinion, 29.9 percent felt that the tests were unfair. Also, while many of the students (47.5%) felt that the tests were very difficult, 52.6 percent felt that the tests were either of moderate difficulty or easy. The majority of the students (52.1%) did not feel that the tests accurately reflected what they knew. While only 17.7 percent felt that the tests did reflect what they knew. Thirty percent had no clear feelings about the tests along this dimension.

What is to be concluded from these responses is not clear. Mixed feelings about tests are not unusual; in many respects, they are to be expected. However, it is clear that no clear trends emerge from the data, and no conclusions about the tests can be shown.

Referring to subscale 6, it is obvious that students feel that being able to view and review the lectures at anytime is essential. Strangely, the video tapes were not used frequently and only by those who had missed a class or felt that they had not understood a lecture. However, the students seem to feel that having this resource available when needed is crucial.

Subscale 7 assesses student attitudes toward the information sheets that had been included in the modules. Again, the weight of opinion seems to be on the positive side. The students felt that they were well written, were congruent with the objectives, and helped prepare them for their profession.

The students' feelings about the textbook used for supplemental reading were somewhat mixed. Overall, the students' were either neutral or favorably inclined toward the text, however enough of the students

reflected a negative attitude so as to obscure any clear, positive conclusions. One can only conclude that the textbook was adequate.

Finally, the students indicated a favorable attitude toward the lectures given during the pilot. Over half of the students felt that there was a clear relationship between the module's objectives and the lectures while only 23.7 percent felt that there was not. Further, only 27.2 percent of the students felt that the lectures would not help them be better teachers. Finally, 70 percent of the students felt that the lectures were of average or above average quality, and 45.3 percent felt they were of above average quality.

Questions 35 through 37, while included on the attitude scale, were not scored with the other items. They were reviewed separately. The modules had been designed to take about six to ten hours to complete. The results of question 35 indicate that the time to complete was within this range. In individual consultations, no student reported taking more than ten hours on a simgle module. Questions 36 and 37 are discussed elsewhere in this section.

In general, it would appear that about 50 percent of the students had positive attitudes toward the delivery system, 30 percent had neutral feelings, and 20 percent had negative feelings. The results would appear in favor of the delivery system, but it must be pointed out that it probably would be possible to obtain these results or superior results using any number of methods. The question that was addressed here was not whether the CBTE approach is superior to traditional methods. The central issue was to discover whether the flexible delivery system used in the preservice model was an acceptable method of instruction to be used with

preservice vocational industrial and industrial arts education students in individual, small group, and classroom sized instruction. The results would seem to be affirmative. Further the design of the preservice model would enable it to operate in the field as well as it would on Campus, thereby meeting all of the specifications and expectations of the designers.

Description of Stage III

During the Spring Term, 1979, seven of the participants in the pilot study went into the field for their practice teaching internship. During this stage of the pilot study, the student intern's entry-level competence was assessed by both the university student teaching supervisor and the intern's cooperating teacher. Further, each intern was asked to re-evaluate the CBTE pilot in light of his actual experiences in the field. Although the sample size was small (n=7), it was felt that some indication of the effectiveness of the pilot would be forthcoming.

The evaluation instruments, designed in cooperation with the University Division of Instructional Services, are displayed in Appendix B. This section discusses the results of the field evaluation.

Presentation and Analysis of the Data Collected During Stage III.

The results of the data collected from the field appear in Appendix D as: Summary of Supervising Teacher's Student Teacher Assessment, Summary of Cooperating Teacher's Student Teacher Assessment, and Student Teacher Post-Evaluation. In analyzing the supervisory's assessment, one is impressed with two features, namely: (1) writing demonstration lesson plans and completing assignments on time, were the only two items indicated as below average while (2) seven items were described as being not applicable (NA). Specifically, of the seven supervisors responding, four indicated NA for using film strips and writing a course of study, three checked NA for spirit duplicator, writing and administering performance tests, while only two felt using the overhead projector and writing a unit plan were not applicable. None of these supervisors had a background in industrial arts. It is important to compare their responses with those of the cooperating teachers who do have expertise in industrial arts.

An inspection of the nine cooperating teachers responses indicates only one item was rated below average, i.e., writing a course outline. At the same time, four of the teachers indicated that this item was not applicable in little over one-half the student teaching sites. As with the supervisors, perhaps the most important aspect of the evaluation was the three other competencies deemed not applicable by cooperating teachers, i.e.: (1) using film strips and motion pictures, (2) using the overhead projector, and (3) writing a unit plan. While one can easily see that there may not be an opportunity for student teachers to write a course of study, it would seem less defensible for cooperating teachers to assert that using audio-visual equipment such as the film

strip projector, and the overhead projector as being not applicable to their student teaching situation. It's also interesting to note that at least one "co-op" teacher felt that meeting deadlines and appropriate dress were not applicable.

It is difficult, if not impossible to draw conclusions from such a small sample, however, these two summaries can well serve as a baseline for subsequent evaluations. With such comparisons, one may be able to identify changes, and their direction, if there are changes.

The Student Teacher-Post Evaluation section on writing objectives indicates that an equal number of students indicated that they did not write objectives and that the objectives writing module was not helpful. This would seem to indicate that since students were not required to write objectives, it would follow that the module on writing them would be of little value. In regard to item 5 (the usefulness of the textbook for writing objectives), we knew that the textbook was weak on writing behavioral objectives and for that reason, the Ohio State module on writing objectives was used to supplement the text. Therefore, it is not surprising that the students reflected this in their rating.

The section on Writing Information and Demonstration Plans indicates the disparity of opinion on the nature of writing lesson plans. One student reported that his experience was that of "giving two minute impromptu demonstrations" as they appeared necessary for students to complete their work. Formal lesson planning, in this case, did not prepare the student teacher for this type of teaching.

The second aspect of this section appears to be that one student (perhaps the same one who wrote about demonstrations) reported that he did not present information lessons, therefore, the module on lesson planning was not helpful.

The section on Presenting Lessons reflects the observations cited earlier with regard to the first two sections, i.e., the usefulness of Module 3 (Planning Lessons) and the textbook by Wilber and Pendered.

The section on Developing Units of Instruction indicates a weakness of Module 4 (Organizing and Developing Units of Instruction) which incorporated the Ohio State module of the same name. One student commented, "have students' make more detailed unit plans to prepare them for student teaching." The reason for using the Ohio State module was that Wilber and Pendered does not provide a comprehensive treatment of unit planning.

The section on Personal Philosophy indicated that philosophy is not important for student teaching. While this is probably so, former students report that they needed to state their personal philosophy on teaching applications. One student thought that we should go so far as to teach resume writing.

The responses on the Object and Performance Tests section indicates that Module 6 needs to be revised. The Ohio State developed module was used for teaching performance test construction, although it was reportedly field tested, it still needs to be modified to meet our students' needs. Our students complained that while it presented the elements, it did not present the final construction steps needed for making a performance test.

The section on Instructional Management indicates that almost half of the students felt that the management module was less than adequate. This would indicate that the module should be studied for appropriate revisions. Those revisions shall be made before Fall Term, 1979.

The General Evaluation section indicates that students valued their I A ED 465 (Teaching Practicum) more than I A ED 464. Some of the

written comments on the returned questionnaires indicated that the students disliked "so much paperwork." It would seem that the pencil and paper assignments be re-examined to determine their necessity. However, with exception of the textbook, there seemed to be an equal distribution of "agrees" and "disagrees" on the course and the modules. Perhaps after the revisions, indicated in the foregoing section have been implemented, much of the negativism will disappear.

Summary and Recommendations

The preservice pilot model was developed during the Summer Term, 1978 and inplemented in three steps during Fall Term 1978, Winter Term 1979, and Spring Term 1979. Industrial arts majors enrolled in Industrial Arts 464 and 465 took part in the study. The participants who were enrolled during Winter Term, 1979 were subsequently evaluated in the field for competent performance during their practice teaching internship.

The CBTE delivery and evaluation systems were developed during the Summer Term 1979 and subsequently implemented in stages during the ensueing academic year. Step I took place during the Fall Term and involved the field testing and revision of the CBTE delivery and evaluation system. Full implementation took place during the Winter Term and data was collected and analyzed. Participants enrolled during the ensueing Spring Term.

From the experiences gained from the preservice pilot, it is recommended that 1) the preservice CBTE model be expanded to encompass all of the pre-professional courses in vocational industrial and industrial arts education; 2) that textual material of any kind be selected solely on the basis of utility. Specifically, the study lends support to the contention that no one source of modularized material can meet the specific needs of all institutions; and 3) that studies be conducted to ascertain alternate methods of instruction that meet the learning style needs of the individual.

CHAPTER IV

INFUSING PBTE MODULES INTO INDUSTRIAL EDUCATION 19v

Introduction

This chapter describes the activities leading to the attainment of project objectives seven, eight, and nine. The first section describes the use of the PBTE modules developed by the Center for Vocational Education at The Ohio State University in a conventional delivery system for developing teacher competencies. The second section reports on plans for instructional resource centers to support the CBTE program. The last section concerns the orientation of vocational administrators regarding the need for resource persons to support the CBTE program in each vocational school.

The PBTE Modules as One Means of Developing Teacher Competencies

This component of the competency based program employed a conventional delivery system and utilized both Center for Vocational Education PBTE modules and some Penn State monographs and course handout materials. It was scheduled to be presented for inservice teachers during a period of four terms as Industrial Education (I.Ed.) 19v, Observation and Practice Teaching. The course began with the Summer Term 1978, and continued through the next three terms as three sequential courses. The third term of the course was presented twice, (in both the Winter and Spring terms) in order to permit the supervision of all the students, practice teaching at their own schools. In this arrangement, the student teacher earned two credits for successful completion of each of the three terms. For the individual student teacher, the first term was devoted to demonstration teaching, the second to observation of teaching and one of the last two terms to practice teaching.

The selection and adaptation of The Ohio State University Center for Vocational Education PBTE Modules (hereafter referred to as the PBTE modules) was accomplished in Phase I of the project. This process is described in Chapter II of the Phase I report. The major criteria for selection of PBTE modules were to select a manageable number of modules, and those which best supported the established objectives for I. Ed. 19v.

Incorporation of Results of Phase I and Planning the Instruction. Although the results of this component of Phase I of the project indicated that the students and the instructors found the PBTE modules less satisfactory than any other of the course attributes, it was decided to use the same seven modules again, since they were the modules which best supported the specific course objectives. These modules were:

B-4: Develop a Lesson Plan

C-16: Demonstrate a Manipulative Skill

C-23: Present Information with Overhead and Opaque Materials

E-8: Organize the Vocational Laboratory

E-9: Manage the Vocational Laboratory

C-12: Employ Oral Questioning Techniques

C-15: Present an Illustrated Talk

It was also decided to use two Penn State monographs again to supplement the information contained in the modules. These were:

Teaching Trade and Industrial Subjects by William A. Williams

Writing Multiple Choice Test Items and Tests by William A. Williams

The instructors, aware of the shortcomings of some of the modules, especially B-4, "Develop a Lesson Plan", planned to present supplementary information in class to compensate for this lack. This would include guidance in the use of handouts on the writing of behavioral objectives and in the use of lesson plan

examples contained in one of the Penn State monographs. These efforts were apparently effective. The student evaluation of the "suitability of textbooks and/or materials" rose from the 10th percentile in the Summer Term of 1977 to above the 75th percentile in the Summer Term of 1978.

Characteristics and Geographical Distribution of Student Teachers. At the beginning of the Industrial Education 19v sequence in June 1978 a background questionnaire was completed anonymously by 23 student teachers. The following is a summary of the information obtained from the questionnaires.

1. General
   a. Employment-87 percent were employed in educational positions.
   b. Age-The average age was 38.5 years and ranged from 23 to 58 years.
   c. Teaching certificates-78 percent held Intern Certificates. Most of the certificates were in trade and industrial education, but three were in health occupations.
2. Vocational Teacher Qualifications
   a. Education-One of the student teachers held the baccalaureate degree, one-third had completed at least sixteen college credits and one-sixth had graduated from a secondary vocational program.
   b. Occupational Experience-Two members of the group had more than 25 years of non-teaching experience at their occupation while 14 had more than 12 years experience. Nearly all had been working at their occupation as recently as three years before the data were taken.
   c. Occupational competency Evaluation-87 percent had satisfactorily completed an occupational competency examination or evaluation.
   d. Teaching Experience-As would be expected, this level of experience was relatively low. All had less than three years of teaching experience.

The in-service student teachers were employed at schools which were widely distributed over the Penn State service area. These schools were located in counties from Lycoming in the north to Franklin and York on the Maryland border, and some of the heaviest concentrations of student teachers

were employed in these border counties. The largest number was five located in York county to the south, while several scattered counties had only one student teacher. The map in Figure 4 shows the number of student teachers at each school.

Twenty-three student teachers were enrolled in Industrial Education 19v classes for inservice teachers at the beginning of the 1978-79 school year. During this period of time one student did not complete the three-term series (for other than academic reasons) and two other students (with previous credits in I. Ed. 19v) re-entered the course series.

During the 1978 summer and Fall terms, classes were held at two locations: University Park and Middletown. Initial enrollment at the foregoing locations was eight and 15 respectively. During the 1979 Winter and Spring terms, the student teachers were visited regularly at the schools where they were employed.

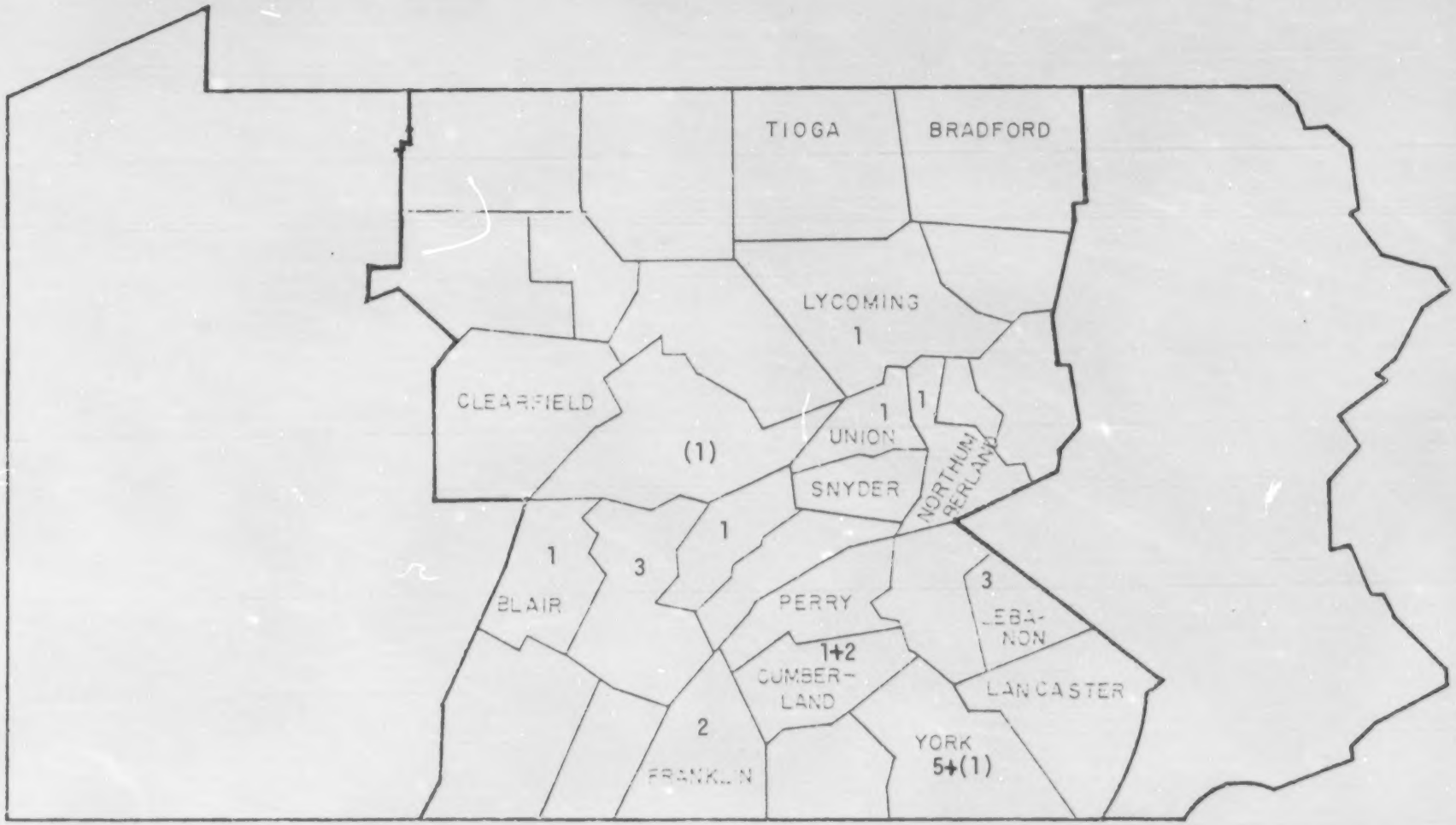


FIGURE 4: STUDENT TEACHER EMPLOYMENT LOCATION (24 total)

Numbers in parentheses indicate those not employed in public education on December 6, 1978.

Execution of the Program. During the Summer term of 1978 the student teachers met with their instructor weekly for two periods. Each student was required to meet modified terminal objectives of Modules B-4, C-16, and C-23. The modification changed conditions for student performance from, "In an actual school situation..." to "...in the I. Ed. 19v classroom." Additionally, each student was required to evaluate the performance of four of his peers as they were engaged in the final learning experiences of Modules C-16 and C-23.

During the Fall term of 1978, the students were required to make five half-day visits to observe the performance of experienced vocational teachers in their laboratories and classrooms. The students met with their instructors six times to report on, and discuss their observations. Modules E-8 and E-9 were used as text materials along with the modules and monograph used in the summer. The student's written reports required the completion of a set of eleven assignment sheets which had been prepared for the course in the Division of Occupational and Vocational Studies.

Available manpower to supervise student teachers at their schools during the third phase of I. Ed. 19v consisted of three members of the project staff. Only two were available in any one term, however. Each student teacher was to be observed (and his presentations evaluated) with his students six times over a period of ten weeks. This could be done by enrolling part of the student teachers for this final phase of the course during the Winter term and the rest during the Spring term, 1979. It also required the retention of another resource person to supervise three student teachers during the Spring term.

During the Winter term one supervisor spent one day visiting a total of four student teachers each week in two counties while the other supervisor

spent one day per week visiting three student teachers in a third county. Both supervisors continued their trips to visit students in the Pilot Program during the next day. During the spring term one supervisor spent two days per week visiting ten student teachers in three counties. Another supervisor spent one day per week visiting two student teachers in two separated counties. A third supervisor spent one day per week visiting three student teachers in three contiguous counties.

During the 1978-79 school year a total of 142 student-credits were earned in this component of the competency based program. Table 4.1 gives a breakdown of this figure by students, credits, and school term.

Each of the three phases of I. Ed. 19v was evaluated by the students when they completed the term, using the PSU Instruction Evaluation Form (IEF). For I. Ed. 19v1 (Demonstration Teaching) the course attribute "Suitability of Textbooks and/or Materials" was rated above the 75th percentile in comparison with the University at large. The attribute, "Overall Rating of Course" was rated above the 90th percentile. For I. Ed. 19v3 (Practice Teaching) these two course attributes were both rated above the 90th percentile. This was a distinct improvement over the ratings of the same attributes during Phase I of the project, except for "Overall Rating of Course" for I. Ed. 19v3, which was above the 90th percentile during Phase I and Phase II.

Planning for Instructional Resource Centers

Advisory Committee Recommendations. Part of one meeting of the Advisory committee was devoted to a discussion of initial plans for Instructional Resource Centers to support the CBTE program. A wealth of ideas and experience was shared with the project staff. Specific recommendations were made regarding functions and personnel and hardware and software.

Table 6

STUDENT CREDIT HOUR GENERATION

INDUSTRIAL EDUCATION 19v

1978-1979

Students	Credits	Product
Summer 23	2	46
Fall 25	2	50
Wn & Sp 23	2	46
		142 Stu-Cr.

It was recommended that these centers be facilities that would enable the student teacher to observe and review both practice and real-world performances, his own as well as those of others. Also, that these facilities should accomodate both individual and small-group activities, including consultations between the student teacher and the resource person. Further, that the centers should be set up as required in the student teachers' home schools and should be supervised by the field rescurce person.

It was also recommended that video tape recording (VTR) systems be procured for the centers, using funds available for that purpose. Finally it was suggested that tapes of exemplary performances would be quite useful in centers.

Procurement and Application of Hardware. Three compact, portable VTR systems have been obtained at reasonable cost. Each system includes a black-and-white lightweight camera with zoom lens and tripod, the recorder, and a black-and-white TV receiver for monitor and playback.

The VTR systems will be used first in an on-campus new teacher workshop. This will introduce the teachers to the use of the VTR in a CBTE program. In the Fall, the VTR's will be available for placement in vocational schools where there are concentrations of student teachers.

Software. On the main campus at University Park, the facilities of the Vocational Industrial Reading Room are available to all students throughout the school year. Adequate stocks of the PBTE modules and Penn State monographs are also avaliable here for sale or loan to students.

Orientation of Secondary Vocational Education Administrators and Supervisors

Advisory Committee Recommendations. Having provided very helpful advice and guidance regarding the LRC's, the advisory committee also shared their knowledge and experience with the project staff concerning the cooperative enlistment of local resource persons. It was recommended that the local resource persons be master teachers in each school where teachers requiring Level I certification are employed. In order to obtain the services of the master teachers, it was recommended that the cooperation of the administration and master teachers at each vocational school in the Penn State service area be sought. Further, it was suggested that a proven way of obtaining this cooperation would be to entertain the administrators and teachers at a central point, using this occasion to explain the mutual need for the local resource person, offering any inducements to the resource person that might be available.

Orientation Meeting and Luncheon. It was decided to adopt the advisory committee recommendations in so far as possible in order to obtain the cooperation and support of vocational administrators and master teachers. The limitations of project funds prevented bringing more than one representative of each school to University Park for an orientation to the CBTE program. Since the approval and cooperation of school administrators was essential to obtaining the help of master teachers as resource persons, an administrator or supervisor (preferably a director or principal) responsible for the improvement of instruction at each secondary vocational school and comprehensive high school in the Penn State service area was invited to the main campus for an explaination and discussion of the CBTE program. A copy

of the letter of invitation and of the agenda for the meeting may be found in Appendix F. The meeting was attended by 18 vocational administrators and supervisors from within the Penn State service area.

Presentations by the project staff summarized the status of vocational education at Penn State, described the verification of industrial teacher competencies in Phase I, discussed the conventional delivery system for vocational teacher training, the pilot preservice program and the pilot inservice program, concluding with a discussion of plans for Phase III of the project. The discussion of the last topic included our explaination of the need for, and the functions of the local resource person.

The reactions of the participants seemed quite favorable to the proposed CBTE delivery system, even though it would mean that the vocational schools would be sharing somewhat more of the responsibility for Level I teacher certification preparation. Some special interest was shown in the grading system which tends to make an "A" the only passing grade.

Initial Results. The orientation of administrators and supervisors had almost immediate results. One supervisor called during the week following the orientation to nominate one of his teachers as local resource person. Within six weeks 10 supervisors or administrators had submitted their nominations.

APPENDIX A

Evaluation Instrument - In-service CBTE Pilot Program

APPENDIX A

The Pennsylvania State University
Division of Occupational and Vocational Studies

PSU-CBTE Project
1978-1979

EVALUATION INSTRUMENT

Directions: The purpose of this document is to collect information related to the teacher education program you were involved with during the 1978-1979 school year. Following are a number of easy to complete items. There are no correct or incorrect responses for any of these items; therefore, you are requested to respond to each item as candidly as possible. The reason your name is requested is to assist the project staff in monitoring the return of the instrument.

DEMOGRAPHIC DATA

1. Name _____
2. Age _____
3. Occupational Experience (specify kind) _____
4. Number of years of occupational experience _____
5. Number of years of teaching experience (include the present year) _____
6. Number of college credits completed (include those currently enrolled for) _____

MODULE DATA

7. On the average, how much time did you spend completing each module? _____ hrs.
8. Did each of the modules require a reasonable amount of time to complete considering the competency involved?
   _____ definitely yes Comments:
   _____ yes
   _____ not sure
   _____ no
   _____ definitely no

9. Which of the following played a significant part in your achieving the competencies described in the terminal objectives of each of the modules? (Check all that apply, and if you check more than one item, rank them in the order of importance-that is: 1-most important, etc.)?
   _____ the module itself Comments:
   _____ the resource person
   _____ peers (fellow teachers)
   _____ resources other than those mentioned

APPENDIX A (Cont'd)

10. Were the various sections of the modules clearly stated, and did you understand how you were to proceed through the materials?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

11. Did you find that the optional learning activities were useful, and did you tend to complete the optional learning experience in order to broaden your grasp of the competencies being developed?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

12. Were the required learning experience clear and easy to understand?
_____definitely yes Comments:
_____yes
_____no
_____definitely no

13. How adequate was the content contained in the various information sheets?
_____too much detail was provided Comments:
_____just right
_____too little detail was provided

14. Was the information contained in the modules relevant to your professional development?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

15. Generally speaking, did you find that the use of the modules was an efficient way of developing teaching competencies?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

COMPETENCY-BASED TEACHER EDUCATION (CBTE) DATA

16. Was the purpose of the CBTE experience you have just completed clearly presented to you, and did you understand what it was you were to have achieved?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

APPENDIX A (Cont'd)

17. Do you feel that the method of evaluating successful achievement of the various competencies was fair and consistent?
_____definitely yes Comments:
_____yes
_____not sure
_____definitely no

18. Compare your experience in CBTE with the experience you have had with traditional college education courses. Place a (✓) in the most appropriate space after each of the following items.

	CBTE	TRADITIONAL
Generally more interesting	_____	_____
Allows more personal contact to be made	_____	_____
Activities are more motivating	_____	_____
Allows more opportunity to work at your own pace	_____	_____
Provides greater variety of experience	_____	_____
Helps achieve greater competence in teaching skills	_____	_____
More efficient use of time	_____	_____

19. Did you enjoy using this method of instruction more than the conventional method of instruction?
_____definitely yes Comments:
_____yes
_____not sure
_____no
_____definitely no

20. In general, are the requirements to complete this program too difficult?
_____yes
_____no

21. In general, were the number of college credits assigned to this program relistic?
_____yes
_____no

22. What did you like best about this system of instruction?
A.
B.
C.
D.

23. What did you like least about this system of instruction?
A.
B.
C.
D.

APPENDIX A (Cont'd)

RESOURCE PERSON DATA

24. Did your resource person from Penn State visit you frequently enough?
_____yes
_____no
Comments:

25. Did your resource person from Penn State spend enough time with you when he did visit you?
_____yes
_____no
Comment:

26. Did you have group meetings with your resource person throughout the past year?
_____yes
_____no
Comments:

27. With regard to the number of group meetings that were held, would you have preferred:
_____more
_____the same
_____fewer
Comments:

28. Below are several statements which may or may not describe how the resource person for Penn State related to you during your experience with CBTE. Respond to each statement as true if it is an accurate description of the resource person, and false if it is not.

TRUE	FALSE	
		Made me feel at ease.
		Made me aware of what was expected.
		Was knowledgeable about the competencies being developed.
		Was helpful in relating the competencies being developed to everyday teaching.
		Was sensitive about my individual needs.
		Was fair in evaluating my performance.
		Provided additional materials to support the information contained in the modules.
		Interfered with normal classroom operation.
		Caused an unreal classroom atmosphere to prevail.
		Alienated the student body by his presence.

APPENDIX A (Cont'd)

MODULE QUALIFICATION

Below you will find a list of modules. The module title is a general description of a teaching skill. Would you please note each of the modules you completed in terms of the degree to which possessing the teaching skill would contribute to a teacher's success in helping students learn. Please do not rate a module if you have not completed it.

Scheme for Rating:

A. Very high contribution
B. High contribution
C. Average contribution
D. Low contribution
E. Very low contribution
F. No Contribution

29. _____Determine Needs and Interests of students
30. _____Develop Student Performance Objectives
31. _____Develop a Unit of Instruction
32. _____Develop a Lesson Plan
33. _____Select Student Instructional Materials
34. _____Prepare teacher-made Instruction Material
35. _____Employ Simulation Techniques
36. _____Employ the Project Method
37. _____Introduce a Lesson
38. _____Summarize a Lesson
39. _____Employ Oral Questioning Techniques
40. _____Present an Illustrated Talk
41. _____Demonstrate a Manipulative Skill
42. _____Demonstrate a Concept or Principle
43. _____Present Information with Overhead and Opaque Materials
44. _____Present Information with the Chalkboard and Flip Chart
45. _____Evaluate your Instructional Effectiveness
46. _____Provide for Student Safety
47. _____Provide for the First Aid Needs of Students
48. _____Assist Students in Developing Self Discipline
49. _____Organize the Vocational Laboratory
50. _____Manage the Vocational Laboratory

THANK YOU FOR YOUR COOPERATION

Wayne L. Detwiler, Sr.

APPENDIX B

Student Attitudes Scale

APPENDIX B

The Pennsylvania State University
Division of Occupational and
Vocational Studies

Industrial Arts Education
I A ED 464/465

HOW DO YOU FEEL ABOUT THIS MODULE?

We Ask Your Help

Industrial Arts 464 is undergoing a revision of instructional materials and methods of instructional delivery. As a professional, you know that it takes a great deal of time and effort to design, implement, and debug a major curricular revision. We need your input to insure that things that need to be changed are changed, and that which is good is made better. Please help us by completing this module assessment instrument.

Thanks for your help.

Respectfully.

Edward W. Bilderback
Editor

Directions: Each time you complete a module, we would appreciate it if you would evaluate it. This will represent your frank opinion of the module. Since we need your honest opinion, please do not put your name or student I.D. number on the machine scored answer form.

1. There are two boxes along the left-hand margin of the machine scored response sheets. Please darken in the module number in columns "A" and "B" located in the box. As an example, if you are going to evaluate Module 1, then blacken in "0" under "A," and "1" under "B." If you are going to evaluate Module 6, blacken in "0" under "A," and "6" under "B."
2. Rate each item below on the following scale:
   - A = strongly agree
   - B = agree
   - C = neutral
   - D = disagree
   - E = strongly disagree

Darken the appropriate lettered circle on your response sheet. Please darken only one circle per item. Use a #2 pencil, not ink, and please do not make any stray marks.

APPENDIX B (Cont'd)

Please feel free to refer to the module that you are evaluating if it would help refresh your memory.

3. You may have some specific comments that you would like to make concerning the module. Make these on a separate sheet of paper and hand it in with your booklet and answer sheet.
4. When you have completed your evaluation of the module, please return booklet, response sheet, and comment sheet (if any) to your instructor. Please make sure that neither your name nor your I.D. number appear on any of the material that you hand in.

How You Generally Feel About This Module

1. The module was poorly written.
2. Enough time was allowed to complete this module.
3. This module would be a good source of reference when practice teaching.
4. My instructor was always available when I needed individual help.
5. The module did not demand much original thinking.
6. The module was easy to read.
7. The module is well organized.
8. The module continued about the right amount of structure and guidance to help me learn efficiently.
9. I did not enjoy this module.

How You Feel About the Introduction in This Module

10. The module's introduction oriented me to the overall goals of the module.
11. The module's introduction was well written.

How You Feel About the Objectives in This Module

12. The module's objectives clearly stated what I had to be able to do and to know.
13. The module's objectives indicated clearly the criteria by which I was to be evaluated.

APPENDIX B (Cont'd)

How You Feel About the Learning Experiences in This Module

14. The directions in the learning experiences are vague and confusing.
15. There is little relationship between the objectives in the module and the learning experiences.
16. I will be a better prepared teacher because of the learning experiences in this module.
17. The learning experiences in this module were very difficult to do.
18. I learned a great deal from the learning experiences.
19. I like the idea of being able to repeat learning experiences in order to improve my grade.

How You Feel About the Test That You Took For This Module

20. The test for this module accurately tested what I was supposed to study and learn.
21. The test for this module was not very fair.
22. The test for this module was very difficult.
23. My test grade for this module reflects what I know.

How You Feel About the Availability of Video-Tapes of the Lectures

24. I like the idea of having video-tapes of the lectures available for my use.
25. From my point of view, having the lectures on video-tape, is an essential part of this module.

How You Feel About the Information Sheets That Were Included Within the Module

26. I will be a better prepared teacher because of the information sheets included within the module.
27. There is a clear relationship between the module's objectives and the module's information sheets.
28. The information sheets in this module are poorly written.

APPENDIX B (Cont'd)

How You Feel About the Textbook Reading Assignments in This Module

29. This module's textbook assignments will help me to be a better prepared teacher.
30. There is a clear relationship between the module's objectives and the reading assignments in the textbook.
31. The reading assignments in the textbook were well written.

How You Feel About the Classroom Lectures That Were Given in Association With This Module

32. There was a clear relationship between the module's objectives and the lectures that were given for this module.
33. The lectures that were given for this module will help me be a better prepared teacher.
34. Overall, I would give the lectures for this module a good grade in terms of their quality.

Directions: For these last three items, please respond by blackening in the area on the machine scored answer sheet which corresponds to the answer that you select.

35. In general, how much time did you have to spend studying this module and doing all of the assignments?
    A. Less than 1 hour
    B. 1-2 hours
    C. 3-4 hours
    D. 5-6 hours
    E. More than 7 hours
36. How would you grade the overall quality of this module?
    A. Excellent
    B. Good
    C. Fair
    D. Poor
    E. Very Poor

APPENDIX B (Cont'd)

37. In general, how do you feel about the methods of instruction that are being used in this course?

A. I feel that the instructional methods used in this course are superior to traditional methods.

B. I feel that the instructional methods used in this course are no better than traditional methods.

C. I feel that traditional methods are superior to the instructional methods used in this course.

APPENDIX C

Recorded Student Attitudes Toward Preservice Modules

Appendix C

Student Attitudes Toward the Total Pilot Study as Measured by the Attitude Scale, "How Do You Feel About This Module," Across All Modules, By Percent Agreement

Subscale 1: How You Generally Feel About The Modules

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
1.	3.1	11.5	27.1	50.0	8.3	The modules were poorly written.
2.	2.1	35.1	22.7	26.8	13.4	Enough time was allowed to complete the modules.
3.	14.4	38.1	28.9	14.4	4.1	These modules would be a good source of reference when practice teaching.
4.	19.6	23.7	39.2	14.4	3.1	My instructor was always available when I needed individual help.
5.	5.2	8.2	32.0	48.5	6.2	The modules did not demand much original thinking.
6.	8.6	51.5	19.6	14.4	6.2	The modules were easy to read.
7.	10.3	56.7	17.5	9.3	6.2	The modules were well organized.
8.	6.2	34.0	28.9	23.7	7.2	The modules contained about the right amount of structure and guidance to help me learn efficiently.
9.	16.7	14.6	29.2	26.0	13.5	I did not enjoy the modules.

Subscale 2 : How You Feel About the Introductions in the Modules

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
10.	11.3	54.6	21.6	8.2	4.1	The modules' introductions oriented me to the overall goals of the modules.
11.	7.2	52.6	27.8	7.2	5.2	The modules' introductions were well written.

Subscale 3: How You Feel About the Objectives In These Modules

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
12.	12.4	53.6	21.6	10.3	2.1	The modules' objectives clearly stated what I had to be able to do and know.
13.	14.4	46.4	28.9	6.2	4.1	The modules' objectives indicated clearly the criteria by which I was to be evaluated.

Subscale 4: How You Feel About the Learning Experiences in the Modules

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Questions
14.	5.2	16.5	29.9	43.3	5.2	The directions in the learning experiences were vague and confusing.
15.	3.1	8.2	24.7	52.6	11.3	There was little relationship between the objectives in the modules and the learning experiences.
16.	9.3	46.4	22.7	14.4	7.2	I will be a better prepared teacher because of the learning experiences in these modules.
17.	8.2	23.7	21.6	43.3	3.1	The learning experiences in the modules were very difficult to do.
18.	5.2	34.0	33.0	19.6	8.2	I learned a great deal from the learning experiences.
19.	59.8	30.9	6.2	0.0	3.1	I like the idea of being able to repeat learning experiences to improve my grade.

Subscale 5: How You Feel About the Tests You Took for These Modules

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
20.	7.2	24.7	30.9	23.7	13.4	The tests for the modules accurately tested what I was supposed to study and learn.
21.	12.4	13.4	44.3	25.8	4.1	The tests for these modules were not very fair.
22.	18.6	28.9	28.9	19.6	4.1	The test for these modules were very difficult.
23.	3.1	14.6	30.2	25.0	27.1	My test grades for the modules reflect what I know.

Subscale 6: How You Feel About the Availability of Video-Tapes of the Lectures

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
24.	32.0	34.4	19.6	8.2	6.2	I liked the idea of having video-tapes of the lectures available for my use.
25.	13.4	34.0	27.8	16.5	8.2	From my point of view, having the lectures on video tape is an essential part of the modules.

Subscale 7: How You Feel About the Information Sheets Included within the Module

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
26.	5.2	42.3	32.0	11.3	9.3	I will be a better prepared teacher because of the information sheets included within the module.
27.	4.1	47.4	34.0	10.3	4.1	There is a clear relationship between the modules' objectives and the modules' information sheets.
28.	5.2	7.2	32.0	50.5	5.2	The information sheets in the modules were poorly written.

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Subscale 8: How You Feel About the Textbook Reading Assignments

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
29.	4.1	35.1	32.0	19.6	9.3	The modules' textbook assignments will help me to be a better prepared teacher.
30.	4.1	36.1	34.0	19.6	6.2	There is a clear relationship between the modules' objectives and the assignments in the textbook.
31.	7.2	29.9	38.1	18.6	6.2	The reading assignments in the textbook were well written.

Subscale 9: How You Feel About the Classroom Lectures That Were Given In Association With the Modules.

Item Number	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Subscale Question
32.	11.3	40.2	24.7	17.5	6.2	There was a clear relationship between the modules' objectives and the lectures that were given.
33.	8.2	36.1	29.9	17.5	8.2	The lectures that were given for the modules will help me be a better prepared teacher.
34.	11.3	34.0	24.7	17.5	12.4	Overall, I would give the lectures for these modules a good grade in terms of their quality.

Questions 35 through 37: These Items Were Not Included In The Attitude Score, They Were Viewed Independently.

Item Number	Less than 7 hours	1-2 hours	3-4 hours	5-6 hours	More than 7 hours	Subscale Questions
35.	2.1	6.2	22.7	39.2	29.9	In general, how much time did you spend studying each module and doing all of the assignments?
	Excel-lent	Good	Fair	Poor	Very Good	
36.	11.5	36.5	33.3	11.5	7.3	How would you grade the overall quality of the module?
	Superior to tra-ditional Methods	Equal to tradi-tional Methods	Worse than tradi-tional Methods			
37.	42.5	39.4	18.1	N/A	N/A	In general, how do you feel about the methods of instruction that were used in this course?

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APPENDIX D

Supervisor, Teacher and Intern Evaluation Data (Preservice)

Appendix D

Summary of Supervising Teacher's Student Teacher Assessment

Supervisor's Assessment

Item	Excellent	Good	Average	Below Average	Poor	NA	The student Teacher Demonstrated Entry Level Competency in:
1.	42.8	28.6	28.6				Writing instructional objectives.
2.	28.6	28.6	28.6				Writing information lesson plans.
3.	28.6	42.8	14.3	14.3			Writing demonstration lesson plans.
4.	28.6	28.6	42.8				Questioning students during lesson presentations.
5.	28.6	28.6				42.8	Using the spirit duplicator.
6.	14.3		28.6			57.1	Using film strips and motion pictures.
7.	14.3	57.1	28.6				Using a chalkboard.
8.	14.3	28.6	28.6			28.6	Using the overhead projector.
9.	28.6	42.8	28.6				Presenting information lessons.
10.	28.6	57.1	14.3				Presenting demonstration lessons.
11.			42.8			57.1	Writing a course outline.
12.	28.6		42.8			28.6	Writing a unit plan.

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APPENDIX (CONT'D)

Summary of Supervising Teacher's Student Teacher Assessment
(Cont'd)

Supervisor's Assessment

Item	Excellent	Good	Average	Below Average	Poor	NA	Student Teacher Demonstrated Entry Level Competency in:
13.	28.6	28.6	42.8				Demonstrating his knowledge and understanding of the role of Industrial Arts in the public school.
14.	28.6	28.6				42.8	Writing performance tests.
15.	57.1					42.8	Administering performance tests.
16.	57.1	14.3	28.6				Shop management.
17.	57.1	14.3	28.6				Maintaining shop and classroom discipline.
18.	57.1	14.3	28.6				Directing shop activities.
19.	71.4	28.6					Shop safety.
							STUDENT TEACHER ATTITUDES
20.	57.1	42.8					The student teacher demonstrated a professional attitude.
21.	85.7		14.3				The student teacher was on time for work.
22.	85.7			14.3			The student teacher completed assignments on time.
23.	100.						The student teacher dressed like a professional.

APPENDIX D (CONT'D)

Summary of Cooperating Teacher's Student Teacher Assessment

Item	Teacher's Assessment: Excellent	Good	Average	Below Average	Poor	NA	The student Teacher Demonstrated Entry Level Competency in:
1.	55.6	22.2	22.2				Writing instructional objectives.
2.	55.6	22.2	22.2				Writing information lesson plans.
3.	55.6	33.4	11.1				Writing demonstration lesson plans.
4.	44.4	44.4	11.1				Questioning students during lesson presentations.
5.	44.4	55.6					Using the spirit duplicator.
6.	33.4	22.2	22.2			22.2	Using film strips and motion pictures.
7.	44.4	33.4	22.2				Using a chalkboard.
8.	11.1	55.6	11.1			22.2	Using the overhead projector.
9.	33.4	55.6	11.1				Presenting information lessons.
10.	44.4	33.4	22.2				Presenting demonstration lessons.
11.	33.4		11.1	11.1		44.4	Writing a course outline.
12.	55.6		22.2			22.2	Writing a unit plan.

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APPENDIX D (CONT'D)

Summary of Cooperating Teacher's Student Teachers Assessment (Cont'd)

Item	Excellent	Good	Average	Below Average	Poor	NA	
13.	44.4	33.4	22.2				Demonstrating his knowledge and understanding of the role or Industrial Arts in public school.
14.	44.4	33.3	22.2				Writing performance tests.
15.	44.4	44.4	11.1				Administering performance tests.
16.	55.6	33.4	11.1				Shop management.
17.	66.7	22.2	11.1				Maintaining shop and classroom discipline.
18.	77.8		22.2				Directing shop activities.
19.	66.7	33.4					Shop safety.
							STUDENT TEACHER ATTITUDES
20.	88.9		11.1				The student teacher demonstrated a professional attitude.
21.	88.9	11.1					The student teacher was on time for work.
22.	66.7	11.1	11.1			11.1	The student teacher completed assignments on time.
23.	88.9					11.1	The student teacher dressed like a professional.

APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465

Student Responses

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	71.4	14.3	14.3		
2	42.8	42.8		14.3	
3.	14.3	28.6	57.1		
4.	14.3	14.3	57.1	14.3	
5.		14.3	28.6	42.8	14.3

Question Group
Writing Objectives

Writing objective is an important skill for a practice teacher to be able to do.

I wrote many objectives during my practice teaching experience.

Industrial Arts Education 464 (IA Ed. 464) gave me the requisite skills to write objectives.

Module I (Develop Student Performance Objectives) was a useful reference source during my practice teaching experience.

The textbook we used in IA Ed. 464 was a useful reference in helping me to write objectives.

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APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Student Responses

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Question Group Writing Information and Demonstration Lesson Plan
6.	57.1	42.8				Writing information lesson plans is an important skill for a practice teacher to be able to do.
7.	71.4	28.6				Writing demonstration lesson plans is an important skill for a practice teacher to be able to do.
8.	42.8	28.6	14.3	14.3		I wrote quite a few information lesson plans during my practice teaching experience.
9.	57.1	28.6	14.3			I wrote quite a few demonstration lesson plans during my teaching experience.
10.	14.3	42.8	28.6	14.3		Industrial Arts Education 464 gave me the requisite skills to write information lesson plans.
11.	28.6	28.6	28.6	14.3		Industrial Arts 464 gave me the requisite skills to write demonstration lesson plans.
12.	14.3	28.6	28.6	14.3	14.3	Module 2 (How to Write A Lesson Plan) was a useful reference source during my practice teaching experience.
13.	14.3	14.3		57.1	4.3	The textbook we used in IA Ed. 464 was a useful reference in helping me to write lesson plans during my practice teaching experience.

APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Student Responses

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Question Group Presenting Lessons
14.	71.4	28.6				Presenting information lessons in as important skill for a practice teacher to be able to do.
15.	85.7	14.3				Presenting demonstration lessons is an important skill for a practice teacher to be able to do.
16.	42.8	28.6	14.3	14.3		Industrial Arts 465 gave me the requisite entry level skills to give information lessons.
17.	57.1	14.3	14.3	14.3		Industrial Arts 465 gave me the requisite entry level skills to give demonstration lessons.
18.		42.8	28.6	14.3	14.3	Module 3 (Presenting Lessons) was a useful reference during my practice teaching experience.
19.		14.3	42.8	28.6	14.3	The textbook we used in IA Ed. 464 was a useful reference in helping me present lessons.

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APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Item	Student Responses: Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Question Group: Developing Units of Instruction
20.	57.1	42.8				Being able to write an instructional unit is an important skill for a practice teacher to be able to do.
21.	42.8	42.8	14.3			I was required to write instructional units during my practice teaching experience.
22.	14.3	14.3	28.6	42.8		IA Ed. 464 gave me the requisite entry level skills to write instructional units.
23.	14.3		57.1	28.6	14.3	Module 4 (Organizing and Developing Units of Instruction) was a useful reference source during my practice teaching experience.
24.		14.3	14.3	42.8	14.3	The textbook we used in IA Ed. 464 was a useful reference in helping me to write instructional units.
						A PERSONAL PHILOSOPHY OF INDUSTRIAL ARTS
25.	42.8	42.8		14.3		A personal philosophy of Industrial Arts is important to a practice teacher.
26.	28.6	14.3	28.6	28.6		IA Ed. 465 gave me the help I needed in developing my personal philosophy of industrial arts.

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APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Student Responses

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
27.	42.8	57.1			
28.	42.8	57.1			
29.	14.3	57.1	14.3	14.3	
30.	14.3	42.8	28.6	14.3	
31.		42.8	28.6	14.3	14.3

Question Group
Object and Performance Tests

Being able to write performance tests is a skill that is important to a practice teacher.

Being able to write object tests is a skill that is important to a practice teacher.

IA Ed. 464 gave me the requisite entry level skills to write performance tests.

IA Ed. 465 gave me the requisite entry level skills to write object tests.

Module 6 (How To Construct Ojbect and Performance Tests) was a useful reference during my practice teaching experience.

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APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

	Student Responses				
Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
32.	85.7	14.3			
33.	85.7	14.3			
34.	14.3	28.6	14.3	28.6	14.3
35.	14.3	28.6	14.3	28.6	14.3
36.	14.3		42.8	28.6	14.3
38.		14.3	71.4	14.3	

Question Group
Instructional Management

Being able to manage an industrial arts laboratory is an important skill for a practice teacher.

Being able to maintain discipline within the classroom and laboratory is an important skill for a practice teacher.

IA Ed. 464 and 465 gave me the requisite entry level skills to manage the industrial arts laboratory.

IA Ed. 464 and 465 gave me the requisite entry level skills in classroom/laboratory discipline.

Module 7 (Instructional Management) was a useful reference source during my practice teaching experience.

The textbook used in IA Ed. 464 was a useful reference source for classroom management and discipline.

APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Item	Student Responses: Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
39.	28.6	28.6	28.6	14.3	
40.	14.3	57.1	28.6		
41.	28.6	14.3	28.6	14.3	14.3
42.	14.3		42.8	28.6	14.3
43.		14.3	42.8	28.6	14.3

Question Group
Different Methods of Instruction

It is important that a practice teacher know how to use different instructional methods like the eminar, role playing, problem solving, discovery, simulation, etc.

I used instructional methods other than the lecture/discussion and demonstration methods of instruction.

IA Ed. 464 gave me the requisite entry level skills to use instructional methods other than the lecture/discussion and the demonstration methods.

Module 8 (Methodology and Instructional Organization) was a useful referenced source during my practice teaching experience.

The textbook we used in IA Ed. 464 was a useful reference in helping me use dirrerent instructional methods.

APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465

Item	Student Responses: Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Question Group: General Evaluation of IA Ed. 464/465
44.	28.6	28.6	28.6	14.3		Because of the training I received in IA Ed. 464/465, I shall be a better prepared teacher.
45.		28.6	14.3	28.6	28.6	The training I received in IA Ed. 464 did not help me in my practice teaching experience.
46.		14.3	14.3	42.8	28.6	The training I received in IA Ed. did not help me in my practice teaching experience.
47.		28.6	14.3	28.6	28.6	The textbook that was used in IA Ed. 464 has proved to be very useful to me during my practice teaching experience.
48.		28.6	28.6	28.6	14.3	There was little relationship between what was taught in IA Ed. 464 and what I did during my practice teaching.
49.		14.3	14.3	42.8	28.6	There was little relationship between what was taught in IA Ed. 465 and what I did during practice teaching.
50.	14.3	28.6		42.8	14.3	In retrospect, I would give IA Ed. 464 a high grade in terms of its quality.

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APPENDIX D (CONT'D)

Student Teacher Post-Evaluation of Industrial Arts Education 464/465
(Cont'd)

Item	Student Responses: Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Question Group: General Evaluation of IA Ed. 464/465
51.	14.3	28.6	14.3	28.6	14.3	In retrospect, I would give IA Ed. 464 a high grade in terms of its usefulness to a student who is preparing to teach.
52.	42.8	28.6	14.3	14.3		In retrospect, I would give IA Ed. 465 a high grade in terms of its quality.
53.	57.1	14.3	28.6			In retrospect, I would give IA Ed. 465 a high grade in terms of its usefulness to a student who is preparing to teach.
54.	14.3	14.3	42.8	28.6		The modules that were used in IA Ed. 464 and 465 have proved to ve very useful to me during my practice teaching experience.
55.		28.6		42.8	28.6	In retrospect, I would give the IA Ed. 464 textbook a high grade in terms of its quality.
56.	14.3	28.6	14.3	28.6	14.3	In retrospect, I would give the modules a high grade in terms of quality.

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APPENDIX E

Advisory Committee Members

PSU CBTE Project

APPENDIX E

STAFF AND ADVISORY COMMITTEE

Competency-based Industrial Teacher Education Project

The Pennsylvania State University

July 1, 1978 to June 30, 1979

PROJECT STAFF

Dr. Wayne L. Detwiler, Sr. Project Director

Dr. John Shemick, Project Associate

Mr. Edward W. Bilderback, Field Resource Person

Mr. Nye M. Scofield, Field Resource Person

Mr. Ta Wei Lee, Graduate Assistant

ADVISORY COMMITTEE MEMBERS

Dr. Richard Adamsky, Associate Professor
Trade and Industrial Education
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Mr. John Brandt, Senior Program Specialist
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Mr. Martin N. Gyomber, Principal
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Mr. Charles Hill, Industrial Arts Teacher
Elco Middle School
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Dr. Ruth Lungstrum, Assistant Professor
Vocational Education Program
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University of Pittsburgh

Mr. John Pennabaker, Small Engine Repair Instructor
Altoona AVTS

Dr. Elizabeth M. Ray, Professor in Charge/Home Economics Education Program
Div. of Occupational and Vocational Studies
The Pennsylvania State University

APPENDIX E (Cont'd)

ADVISORY COMMITTEE MEMBERS (cont.)

Mr. Dale R. Straub, Associate Professor of Drafting Technology
Williamsport Area Community College

Mr. Robert E. Westley, Supervisor
Vocational Industrial Education
Tyrone Area High School

Mr. Earl Zimmerman, Industrial Arts Education Advisor
Bureau of Curriculum Services
Pennsylvania Dept. of Education

APPENDIX F

Letter of Invitation and Agenda for

CBTE Orientation Meeting

APPENDIX F

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

July 14, 1978

Dear

I want to express my appreciation to you for agreeing to serve on our Competency-Based Teacher Education Advisory Committee. The organization and orientation meeting for this committee is scheduled to be held on Wednesday, August 10, 1978 at the University Park Campus of The Pennsylvania State University. We will be meeting at the Penn State Faculty Club beginning at 10:00 a.m. The main purpose of this meeting will be to introduce the committee membership to the Penn State Competency-Based Teacher Education Project. The following agenda will prevail at the meeting.

10:00 a.m. - Welcome and Charge to the Committee
Dr. Robert Andreyka

Vocational Industrial Teacher Education Project Orientation
Dr. Wayne L. Detwiler, Sr.

Industrial Arts Teacher Education Orientation
Dr. John Shemick

12:00 noon - Lunch, Penn State Faculty Club

1:00 p.m. - Project Progress Reports
a. In-service VIED - Mr. Bilderback and Mr. Scofield
b. Needs assessment and scheduling - Mr. Tilton
c. Ind. Arts Teacher Competencies - Mr. Helsel
d. Voc. Ind. Teacher Competencies - Mr. Bilderback

Home Economics Education — 814-865-5441 Industrial Arts Education — 814-863-0275 Vocational Industrial Education — 814-865-8361

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I am forwarding with this letter a brief description of the Penn State CBTE project for your review and reaction. Please contact me if I can provide any additional information and material relative to your involvement on our advisory committee. See you on August 10, 1978.

Sincerely yours,

Wayne L. Detwiler, Sr.
Project Director

WLD/pes
Enclosure